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CHILD WORK IN DENTISTRY.

BY C. A. ALLEN, D. D. S., BUFFALO, N. Y.

[Read before the Seventh and Eighth District Dental Societies of New-York at Rochester,
Oct. 28, 1884.]

In the entire resources of the Dental Practitioner there is probably no feature so full of importance as child work. Those who have arrived at the meridian of life, or passing on its downward course, may find little or no need for the dentist's art—but to the infant, coming so soon into childhood, that need may be imperative, or even constant, and so thoroughly have careful mothers learned the importance of this early practice that the young dentist finds himself daily occupied with those little ones.

How best to manage these restless and highly sensitive little organizations has cost many an hour's anxiety to the full practitioner, and woe be to him who undertakes an operation without first fortifying himself within that little one's confidence. That infant brain, whetted to a high state of keenness by anticipation of acute physical pain, is the one of all others to discover deception, and store it away in its little head where neither argument nor years may dislodge it. If there is one crime greater than another in the whole list of dental quackery, I claim that this child-deception is that crime, and it is seed sown which will most surely bring no value in the harvest time. How best, then, may we secure this much desired standing with the little patient? This question must be answered both by the tact of the operator and the peculiarities of the child. But I venture to say that never has any degree of success attended the use of force and commands, while on the other hand, kindness and affection, with assurances which may be verified by the operation itself, place child and dentist on a social platform with not a single shaky plank of prohibition or free trade heresies.

Do not promise, then, that you will cause no pain, but make the little one understand that it will be hurt, if the case warrants, and it is indeed surprising to see the fortitude with which your patient endures dental work. I deprecate long sittings; make them thirty—even twenty—minutes, but never strain too severely that little one's patience.

Do not for a moment imagine that you are losing any of your professional dignity by coming down to the intellectual standpoint occupied by the child, but engage its attention with means best at your command, always avoiding the mystification of technical terms which even older heads might not readily comprehend. If that little patient is dismissed with kindness and affection a monument is raised in the heart of both mother and child, which will surely make the next visit much easier. Practitioners have been heard to declare that they could not afford to waste their time on these restless patients. He who makes such a declaration, to my mind, is unworthy of the patronage of old or young, and will soon see himself outstripped by his neighbor who weighs to-day's results not by to-day, but by their influence upon the future. Every dentist within hearing of my voice is no doubt weighing the truth of this statement by making a hasty review of that class of patients who have been his, and have clung to him with a charming confidence ever since they first were in need of his services. Let him see to it, then, that he has played no deception—with-a-forcep-up-the-sleeve act, or any of its kindred—and at the end of life he will be assured a large balance to his credit in the bank of human love and appreciation.

Now we are on a basis for actual business and the work begins. In the deciduous molars cavities are often kindly shaped by the process of decay, so that a few well directed cuts with sharp excavators will prepare them for the stopping. Observation and experience have taught that to be too thorough at this time is to establish memories in your young patient which may be detrimental both to itself and the operator. In the one case the child is restrained through fear from future visits, while in the other the practitioner is bound to suffer the pecuniary loss of that practice. This may seem to some as a parsimonious view to take in the matter, but I declare, like the member from Texas, "what are we here for if not for spoils?"

To subject a child-patient to the fatigues of gold work is worse than cruel, it is positively malpractice in most cases. Employ, then, the plastics—amalgam standing first in point of preference, on account of its permanency—followed by the oxyphosphates where decay is deep seated and the tooth liable to revolt against constant thermal changes.

Instruct your patient to return each four or six months, and if any of your work has failed, replace it, together with whatever else may be needed. Do not fear failures in this class of work by lack of thoroughness; far

better is it that you replace your work than that you drive your patient from you for years, through fear alone. Let your plastic fillings be employed all through the years of childhood up to the time when the hard tissues have taken on a more positive and matured condition. At this point your early work may be replaced by the ideal gold, as it fails, or as the fastidious tastes of our patient may demand.

Now a word regarding the mothers. With the multifarious cares of the household, many a well-intentioned mother finds herself living far below her ideal. She is overwhelmed with her cares, and as a result, little time is given to study, of any character, and unless the *importance* of certain acts be impressed upon her mind from the proper source, something may be allowed to suffer. Whether that neglect may fall upon organs which we so highly appreciate, depends, not so much upon her standard of intelligence, as upon the earnestness of the one advising. Instruct, then, that the mother should present her child early and often, that incipient decay may be sought out and arrested. Insist upon the use of the tooth-brush twice daily. This the child readily undertakes and accomplishes by its remarkable imitative ability. You make the investment of a few moments of earnest advising, and leave an impression upon that mind which sets the individual to thinking. If the field is new to her, she wants that counsel so dear to a woman's heart, and forthwith trots over to Mrs. Smith to ask if she ever heard of such a thing as filling children's teeth? Whether Mrs. S. be well informed in dental progress or not, you have set a wheel in motion which goes on and on with each revolution, pointing to you as the motor power.

By power of its own inertia, it progresses until overcome by some resistance. Whether that resistance shall be weakening zeal, carelessness, or your more successful competitor, depends entirely upon yourself, for I contend that the education of the community in which you practice is a sacred trust placed in your hands. As you teach, so will those having faith in you believe. If your methods of practice are verified through a series of years, the community will be benefited physically, while you find life's necessities, and even luxuries, easily attained by virtue of the laws of recompense.

THE MATRIX IN AMALGAM FILLINGS.

BY G. C. DABOLL, M. D. S., BUFFALO, N. Y.

[Read before the Seventh and Eighth District Dental Societies of New-York, at Rochester,
October 23, 1884.]

It should be an axiom with every member of the dental profession that "anything that is worth doing at all, is worth doing well." In the years past during what might be termed the rise and progress of dentistry,

from empiricism to its present elevation, on which it rests a demonstrated science, and is accorded that rank, its members have devoted themselves, and justly too, to the solution of the more difficult problems that were successively presented, and ignored in many instances the claim to their attention of the simpler ones. Thus it is to-day that the art of gold filling has, by the study of the character of gold, the invention of instruments, the devising of the thousand and one accessories, reached a high degree of perfection; but with many operators who can boast of success with gold it has been obtained to the exclusion of a proper knowledge of the working of other materials, and thus it is that many, and I might say the majority, of successful dentists do not make creditable operations with the plastic fillings. They are considered too simple; can be done too easily. Most dentists think it does not pay to adjust the rubber dam for an operation that is going to require but a few moments to complete.

And this brings me to the subject of this short paper: "The Matrix in Amalgam Fillings." My advocacy of the use of the matrix is well known, but it has been chiefly with gold, claiming that with it approximate gold fillings can be introduced in less time, with greater ease, and with far more certainty, than without it. I make the same claim for plastic metallic filling. It is conceded by the best authorities that the minimum of mercury in amalgam fillings insures the better result, so that with the mixture of the desired proportions the amalgam must be molded to insure facility in handling it and in approximate cavities the introduction in this form is rendered very difficult on account of the mass resolving itself into a powder, and the impossibility of applying sufficient force to condense it without its escaping from the proximal margins.

We know that crown cavities are easier to fill than those on the proximate surfaces, easier to keep dry, easier of access, and easier to finish, and this holds just as good with plastic materials as with gold.

The operator who aims at uniformity of excellence in all his work, will not fail to avail himself of every means to secure the desired end, and to that end the matrix is an indispensable adjunct in filling teeth with amalgam. It is not desirable to use material for its cheapness and the rapidity with which it can be worked to the exclusion of all other qualities, but rather we should aim to procure that which will bear the highest test for color, edge-strength, and freedom from shrinkage; but when we have the material that possesses all these qualities, we may fail because we neglect to use the means necessary to bring out these qualities; thus, if obliged to add an excess of mercury to render the mass sufficiently plastic to insure its introduction into a proximate cavity, we do it at the expense of strength and limit of shrinkage. If we use an amalgam that will possess sufficient strength under such conditions, we must sacrifice color. In my own practice I use Dawson's amalgam, or white alloy, as it is called, add the

mercury by weight, triturate the mass in a mortar, and mould it for use, introducing it as soon as possible after preparation, frequently using the mallet in condensing and perfecting the amalgamation. After the cavity is prepared I invariably adjust the rubber dam, using the same care in the preliminaries as I would with gold, and expect to have a filling that will admit of finishing at the same sitting, one that will not shrink or discolor, and that will take a durable polished surface and stand the action of mastication.

Such a result I could not accomplish in proximate cavities without the aid of the matrix. Such a result cannot be reached without scrupulous care in all the details of the operation. With care in the selection of the best material, and the observation of all the requirements, such a thing as an artistic amalgam filling may be produced, and, although it is only an amalgam filling, "if it is worth doing at all it is worth doing well."

CHEOPLASTY.

BY LAWRENCE VANDERPANT, L. D. S., ETC.

This term, derived from two Greek words, signifying literally, "*to fashion by pouring*," was, some twenty-five years since, applied by Dr. Blandy of Baltimore, to a system of constructing artificial dentures by means of a casting of an alloy of tin by a process very similar to the now well-known rubber process, for which he obtained two or more patents. For several reasons the system did not receive popular favor, perhaps the chief one being the advent of rubber about the same period, and, maybe, the inventor claiming too much, and urging a universal adoption of his method to the exclusion of gold and other materials. In various forms, at different times, it has been brought to professional notice under the name of "*Adamantine*," *Weston's Metal*, and more recently under the auspices of Drs. Atkinson and Reese by that of "*Cast Gold Alloy*," and undoubtedly these gentlemen have, by the bestowal of care, patience, and scientific application, produced a result far in advance of anything hitherto achieved, and the advocacy of the former, for its therapeutic merits, has rendered it a *sine qua non* to every liberal and advanced practitioner in dental prosthesis.

Although the manipulative process is by far the most simple in Dental Mechanics, yet it is one in which failure and disgust will most frequently occur in early experiment. The writer gave earnest attention to the subject some twenty-three years since, but from repeated failure abandoned it, and it was not until he saw the splendid results (to the patient) in the offices of the above-named gentlemen, that he again experimented, with

the view of affording the profession a positive, unerring means of producing a cast metal base, resulting in an apparatus designated *The Positive Cheoplastic Fabricator**, previous to which *The Campbell New Mode Heater* had afforded a most efficient auxiliary, (by making some simple additions,) but it was evident a less costly and more simple apparatus was needed.

Excepting Dr. Reese's method, the only means at hand are different descriptions of flasks, one of which was patented by Dr. Lawrence, of Lowell, Mass., others by Drs. Weston, Moffatt and Watts, but as failure is more likely than not to occur by their use, they are unpopular—"it is as essential to regulate the Heat in Cheoplasty as in Vulcanizing." Such premise being granted, it will be readily understood that the ordinary Cheoplastic Flask subjected to an uncertain heat, will crack the plaster investment. The metal when poured will probably not be retained, the teeth will be checked, and at the best a misfit is a certainty. By means of the Fabricator a casting can be made into the commonest glass bottle and fracture is impossible (i. e., assuming a suitable alloy be used). Without the aid of a thermometer a temperature is ensured which will evaporate all moisture without danger of cracking model or investments, after which the whole is elevated to a degree corresponding to the melting point of the metal employed; after cooling, the work of removal from the flask will necessitate but little labor, time, or skill, to make it fit for the mouth.

The whole process is clean, simple and elegant, a great portion of it intrusted to the least experienced pupil will result satisfactorily; in this respect it most favorably compares with every known system of Prosthesis. It is hoped that the Celluloid craze is totally consigned to a dishonored grave, but though a worthless thing, yet much valuable time and ability was spent in connection therewith, and many a good practice injured thereby; but such as used it did so in the belief that it obviated some of the inherent defects of rubber, a notable one being its non-conductivity. To these, this system is heartily commended. The Cheoplastic system is by no means recommended for universal use, as its value is only "*especial*" in the inferior maxillary—in that respect it has no equal; its weight (which, though, is imperceptible in the mouth of the patient) and a certain property of *vis inertia*, makes a denture remain in its place "*like a corpse in bed*;" a normal thermal condition is maintained, hence inflammation and excoriation is rarely experienced, a much less rapid absorption of the alveolus occurs, and a patient acquires such confidence that mastication is soon achieved. Much more might be said, but your space is limited, and the field has been well covered by Drs. Atkinson and Reese, to whom be all praise and honor.

ORANGE CITY, NEW JERSEY.

* Patent No. 304,766; Sept. 9th, 1884.

ON COCAINE AND ITS HYDROCHLORATE.

Cocaine, the alkaloid of *Erythroxylon Coca* Lam., was discovered by Niemann in 1860, and afterwards studied by W. Lossen (1862), who assigned to it the formula $C_{17}H_{21}NO_4$.

The coca-leaf has been recognized as having qualities somewhat analogous to those of coffee and tea, its alkaloid, however, being entirely different from Caffeine or Theine, which has the composition $C_8H_{10}N_4O_2$. It has lately been brought into especial notice on account of its powers as a local anæsthetic, and there is reason to believe that it will prove a valuable addition to the *Materia Medica* of the Surgeon and the Dentist.

The coca-leaf is the great source of comfort and enjoyment to the Peruvian Indian; it is to him what betel is to the Hindu, kava to the South Sea Islander, and tobacco to the rest of mankind; but its use produces invigorating effects which are not possessed by the other stimulants. From the most ancient times, the Peruvians have used this beloved leaf, and they still look upon it with feelings of superstitious veneration. In the time of the Yncas it was sacrificed to the sun, the Huillac Umu or high priest chewing the leaf during the ceremony; and before the arrival of the Spaniards, it was used, as the cacao in Mexico, instead of money. After the conquest, although its virtues were extolled by the Ynca Garcilasso de la Vega, and by the Jesuit Acosta, some fanatics proposed to proscribe its use, and to root up the plants because they had been used in the ancient superstitions, and because its cultivation took away the Indians from other work. In 1569, the second Council of Lima, consisting of bishops from all parts of South America, condemned the use of coca, because it was a "useless and pernicious leaf, and on account of the belief stated to be entertained by the Indians that the habit of chewing coca gave them strength, which is an illusion of the devil."

In speaking of the strength the coca gives to those who chew it, Garcilasso de la Vega relates the following anecdote: "I remember a story which I heard in my native land of Peru, of a gentleman of rank and honor, named Rodrigo Pantoja, who, traveling from Cuzco to Rimac (Lima), met a poor Spaniard (for there are poor people there as well as here), who was going on foot with a little girl, aged two years, on his back. The man was known to Pantoja, and they thus conversed: 'Why do you go laden thus?' said the knight. The poor man answered that he was unable to hire an Indian to carry the child, and for that reason he carried her himself. While he spoke, Pantoja looked in his mouth and saw that it was full of coca, and as the Spaniards abominate all that the

Indians eat and drink, as though it savored of idolatry, particularly the chewing of coca, which seems to them a low and vile habit, he said: 'It may be as you say, but why do you eat coca like an Indian, a thing so hateful to Spaniards?' The man answered, 'In truth, my lord, I detest it as much as anyone, but necessity obliges me to imitate the Indians and keep coca in my mouth, for I would have you know that if I did not do so I could not carry this burden, while the coca gives me sufficient strength to endure the fatigue.' Pantoja was astonished to hear this, and told the story wherever he went, and from that time credit was given to the Indians for using coca from necessity and not from vicious gluttony."

The coca plant (*Erythroxylon Coca*) is cultivated between 5,000 and 6,000 feet above the level of the sea, in the warm valleys of the Eastern slopes of the Andes, where almost the only variation of climate is from wet to dry, where frost is unknown, and where it rains more or less every month in the year. It is a shrub, from four to six feet high, with lichens, called *lacco* in Quichua, usually growing on the older trunks. The branches are straight and alternate, leaves alternate and entire, in form and size, like tea-leaves; flowers solitary, with a small, yellowish white corolla, in fine petals, ten filaments the length of the corolla, anthers heart-shaped, and three pistils.

Sowing is commenced in December and January, when the rains begin, which continue until April. The seeds are spread on the surface of the soil in a small nursery or raising ground, called *almaciga*, over which there is generally a thatch roof (*huasichi*). At the end of about a fortnight they come up; the young plants being continually watered, and protected from the sun by the *huasichi*. The following year they are transplanted to a soil specially prepared by thorough weeding and breaking up the clods very finely by hand, often in terraces, only affording room for a single row of plants, up the sides of the mountains, which are kept up by small stone walls.

At the end of eighteen months the plants yield their first harvest, and continue to yield for upwards of forty years. The green leaves called *matu* are deposited in a piece of cloth which each picker carries, and are then spread out in the drying-yard, called *matu-cancha*, and carefully dried in the sun. The dried leaf is called *coca*. The greatest care is required in the drying; for too much sun causes the leaves to dry up and lose their flavor, while if packed up moist they become fetid. They are generally exposed to the sun in thin layers.

The approximate annual produce of coca in Peru is about 15,000,000 lbs., the average yield being about 800 lbs. an acre. More than 10,000,000 lbs. are produced annually in Bolivia; so that the annual yield of coca throughout South America, including Peru, Bolivia,

Ecuador, and Pasto, may be estimated at more than 30,000,000 lbs. At Tacna, the *tambor* of 50 lbs. is worth nine to twelve dollars, the fluctuations in price being caused by the perishable nature of the article, which cannot be kept in stock for any length of time. *The average duration of coca in a sound state, on the coast, is about five months, after which time it is said to lose flavor, and is rejected by the Indians as worthless.*

The smell of the leaf is agreeable and aromatic, and when chewed it gives out a grateful fragrance, accompanied by a slight irritation, which excites the saliva. Its properties are to enable a greater amount of fatigue to be borne with less nourishment, and to prevent the occurrence of difficulty of respiration in ascending steep mountain sides. Tea made from the leaves has much the taste of green tea, and if taken at night is much more effectual in keeping people awake. Applied externally, coca moderates the rheumatic pains caused by cold, and cures headaches. When used to excess it is, like everything else, prejudicial to the health, yet, of all the narcotics used by man, coca is the least injurious and the most soothing and invigorating.

Its qualities ought to recommend its use to members of the Alpine Club, and to walking tourists in general, though the deterioration of the Coca leaves in transportation, especially in sea voyages, renders the quality of different samples exceedingly variable. The alkaloid forms but a small proportion of the mass at best, and in poor samples is very scanty.

Lossen obtained, in the most favorable case, 4 parts per 1,000, and from poor material only 1.6 parts per 1,000.

Cocaine crystallizes in four or six-sided monoclinic prisms. It is soluble at 12° C. in 704 parts of water; easily soluble in alcohol, and still more so in ether. It melts near 92°.

Cocaine combines easily with dilute acids, forming easily crystallizable salts, which are soluble in alcohol, but *insoluble in ether*, have a bitter taste, and leave a transient sensation of insensibility upon the tongue.

Hydrochlorate of cocaine, $C_{17}H_{21}NO_4 \cdot HCl$, separates from its aqueous solution in short transparent, prismatic crystals, which are permanent in the air.

Acetic acid dissolves cocaine readily, but on evaporation the base separates again in crystals. Niemann took these for the acetate.

Nitrate of cocaine crystallizes with great difficulty.

Neutral sulphate of cocaine is a transparent gummy mass, becoming only slowly crystalline.

Schroff, who made the first experiments with cocaine in 1862, observed that it caused fluctuation in the respiration and pulse, and produced mydriasis. Frommuller (1863) found that it had but little effect in man, in doses of 0.03 to 0.33 Gm. ($\frac{2}{3}$ to $\frac{1}{2}$ grain), and in the case of an attempted

suicide, 1.5 gm. (24 grains) did not even produce serious results. The fatal dose, therefore, seems to be much higher, unless the cocaine used in those days was very impure.

According to Merck, coca contains between $\frac{1}{5}$ and $\frac{1}{50}$ per cent. of cocaine. The average effective dose of the hydrochlorate, in man, is stated to be 0.05 gm. ($\frac{3}{4}$ grain).

Last year cocaine was recommended as a remedy in cases of great exhaustion from various causes. Its use in such cases suggested itself naturally from the well-known fact that coca has long been used as a preventive of the waste of tissues, fulfilling the same function as tea, coffee, and other substances of this nature. It has also been found of great value in the treatment of morphinism, supplying the craving for stimulants resulting from the gradual or sudden withdrawal of morphine or opium. A similar use has suggested itself in the treatment of alcoholism. Dr. Freud has reported very favorable results in morphinism; when morphine is to be slowly withdrawn, the dose is gradually lowered, and that of cocaine proportionately increased. Dr. Freud reports complete recovery in one case after ten days' treatment, and believes that there is a positive antagonism between morphine and cocaine.

It has been often noticed by different experimenters since 1863, that cocaine produces temporary insensibility or numbness when applied to certain mucous membranes, but no practical use suggested itself until quite recently. In the United States it has been used to a considerable extent to lessen the irritability of the soft palate and pharynx in laryngoscopic examinations.

Dr. Koller, of Vienna, the discoverer of the anæsthetic effect of the remedy, found that immediately after the instillation of a two per cent. solution of hydrochlorate of cocaine into the eye, there was felt a short feeling of burning lasting for about one-half minute, which was soon followed by an indistinct feeling of dryness. The aperture of the eyelids appears wider, and reflex actions (such as are usual when the cornea is touched: twitching of the head, of the lids, turning aside of the eye-ball, etc.), disappear. When this condition prevails, pressure may be made upon the cornea or a portion of the conjunctiva be caught with pincers, without any disagreeable sensation being felt. The anæsthesia of the eye lasts for about ten minutes, and a low degree of sensibility persists for several hours. Twenty to thirty minutes after the application, the pupil becomes dilated, returning in about twelve hours to its normal condition. The only abnormal symptom observed during this condition is a slight paralysis of accommodation, which can, however, be overcome by a little effort.

Since Dr. Koller publicly exhibited his experiments and prophesied for cocaine a speedy general use in ophthalmological practice (for operations,

etc.), the new drug has been experimented with in all countries, the United States included, and those who have used it and seen its operation are quite enthusiastic over it. Moreover, it has already been ascertained that it acts as an anæsthetic not only on the conjunctiva of the eye, but on all mucous membranes.

Prof. W. M. Polk, M. D., of New-York, has used a four per cent. solution of cocaine as an anæsthetic in an operation for abscess of the liver, the solution being applied to the open wound; and under its anæsthetic effect the operation was completed within twenty-five minutes, without any discomfort to the patient.

On October 29, 1884, Dr. Polk closed rents of the cervix uteri in two cases, after applying the solution of cocaine as given above. Three applications were made two or three minutes apart, and the operation was commenced about three minutes after the last application. The first operation lasted forty minutes, but no complaint was made until the last ten minutes, and then the discomfort was a sense of soreness rather than acute pain. In the second case, there was more sensitiveness to the touch before the application of the solution. No pain was felt, however, until after the lapse of twenty minutes, when it was necessary to re-apply the solution, which was done directly to the cut surfaces, after freeing them from blood.

The testimony of this patient is valuable, as she had previously undergone the same operation with ether, and she unhesitatingly preferred the application of cocaine.

Dr. J. R. Uhler, of Baltimore, writes to the *Maryland Medical Journal*, that the application of the solution of the muriate of cocaine to the vulva mitigates the pains of labor.

Dr. Felix Semon, of London, England, has used it successfully in intra-laryngeal operations.

Dr. C. Bader, of Guy's Hospital, has repeatedly used it in operations on the eye.

Dr. F. H. Bosworth reports, in the *Medical Record* (Nov. 15th), that on applying a solution of cocaine (2 per cent.) to the nasal passages, the venous sinuses below the mucous membrane become, within twenty or thirty seconds, so rigidly contracted as to expel all the blood contained in them, and to cause the membrane to cling closely to the bony structure which then becomes sharply outlined. He has used the drug in hypertrophy of the nasal mucous membrane (*nasal catarrh*), acute *coryza* and in operations for nasal *polypus*. In each case the venous congestion or turgescence was so thoroughly kept down that all discomfort was removed, and in the case of polypi not only the recognition and removal of the growth became quite easy, but also turned out a bloodless operation.

Dr. Bosworth also suggests the use of cocaine in hay-fever.

A four-per-cent. solution is now generally preferred when prompt action is required.

We may add that the drug appears to be of value particularly also to dentists. While its effects may be too superficial to render it applicable in cases of extraction, it will undoubtedly add much to the patient's comfort when ligatures are to be forced under the gum in the application of the rubber dam, and it may possibly be of service as an alleviator of sensitive dentine. Its topical application will probably be found of benefit in some forms of neuralgia, and in odontalgia. Cases of pulpitis will probably be relieved, on account of its property of relieving venous congestion, as mentioned by Dr. Bosworth (*supra.*).

To produce local anæsthesia it is only necessary to paint the part with the solution two or three times at intervals of as many minutes. Insensibility of the part will supervene in about five minutes, and continue from twenty to thirty minutes. It may also be injected hypodermically with good effect. A two or four per cent. solution is generally employed, but a stronger one is sometimes required, even as strong as twenty per cent.

If ever a remedy, on purely theoretical grounds, held out any hopes of being serviceable in sea-sickness, it seems to us that cocaine is one of these. At all events, it will be worth while to try its effects.

We are indebted to the below-named journals for the data for the preceding article :

American Druggist, Dec., 1884; *The Lancet*, Nov. 22, 1884; *N. Y. Medical Record*, Nov. 15, 1884; *Buffalo Medical and Surgical Journal*, Dec., 1884.

ANÆSTHESIA AND ANÆSTHETICS.

Dr. Squibb, writing on Ether in the *Ephemeris*, says :

Time that tries all things, has disposed of many of the issues which arose in the earlier application of anæsthesia, but has entirely failed in producing that universally applicable anæsthetic — that philosopher's stone for which the alchemists of the profession still vainly search — namely, an agent which shall be potent, but potent only for good. This physical impossibility seems to be to medicine what perpetual motion is to mechanics, and time wears away such heresies very slowly. It would, doubtless, be better for the profession and for mankind, if the safer of the anæsthetics already well known were better studied in relation to their special adaptation, and were applied with a more wise discrimination.

The condition of full anæsthesia is one of the most grave and frightful conditions of life, for by suspending more than half of vitality it comes

so near to death as to be easily recognized as one of the stages of dying, and it is wonderful to see how near the boundary-line can be approached and yet be so rarely passed. Familiarity with anæsthesia, and a distant view of its accidents, lead the profession to plunge their patients into it with too little regard for its true nature and gravity. The condition now so common, when seen but a few years ago, never failed to excite the gravest apprehension; and even now, when seen as the effect of other narcotics, is called poisoning—causes much anxiety, and secures the most active measures for relief.

The roughly-expressed, though perhaps practical condition essential to anæsthesia is diminished oxidation or diminished vital action in the sensorium; and the primary object is to confine this within the limits of safety. It is a kind of partial asphyxia or suffocation occurring not in the organs of respiration and circulation primarily, but far back of these in tissues where the vital power is generated or renewed. The air passages normally admit oxygen, and the blood takes it up and carries it, but carries it with an agent which prevents or modifies its assimilation in the tissues which supply the vital forces. To diminish this assimilation or this supply seems to constitute anæsthesia. To arrest or prevent it is death by narcosis. Hence the line of greatest safety in practice is to regard the difference between anæsthesia and death as a difference in degree or quantity only. The condition may be partial, full, profound, or fatal, but with no distinct boundary-lines between the degrees. The two intermediate degrees or stages constitute anæsthesia proper, and the full anæsthesia is generally required in surgery, while the stage of partial anæsthesia is generally sufficient in medicine. In the production of anæsthesia, the more powerful, prompt and efficient the agent, and the larger the dose, the greater the liability to overleap the intermediate stages, and unexpectedly extinguish life.

This seems but plain, common sense, and physicians are very familiar with the principle, in the action of all toxic agents and in the toxic influence of all acute diseases, and yet they often fail to apply it in their selection of the agent and the dose to produce this most acute of all diseased conditions, wherein the issues of life and death are narrowed down—not to days or hours, but to a few minutes. Add to this the fact that this condition rests with the physician or surgeon whether to produce it or not, and it is difficult to understand how its importance can be overestimated.

The condition known as anæsthesia must therefore be admitted to be in itself a dangerous one, and dangerous in proportion to the degree to which it is carried. And it must also be admitted that when the degree of full anæsthesia is reached, the signs which mark the approach of the profound and fatal stages are very much masked by the condition

itself, so that the attempt to maintain the safer stage may produce those which are less safe without recognition of the fatal progress until one of two or three things suddenly occurs, with a more or less sudden death.

Then if the condition of anæsthesia be a dangerous one, all anæsthetics must be dangerous; and to prove that all are dangerous, it is only necessary to remember that the number of deaths fairly charged against all of them is quite numerous, and the number is increasing against all.

Nitrous oxide has probably been used by far the largest number of times, and has probably saved the greatest aggregate amount of pain, yet it has produced by far the fewest deaths, and, although applicable to the largest number of cases, it is not appropriate to the very large number of the most important cases, requiring anæsthesia.

Ether, beyond all question, stands second in the rank of safety, having had the largest general application next to nitrous oxide and by far the largest application of all, if the importance of the cases and the duration of the anæsthesia be considered, and yet the number of its deaths are not very greatly in excess of nitrous oxide. If it be remembered that nitrous oxide is commonly used for momentary effect upon healthy individuals, as in dental practice, while ether is used for prolonged effect in diseased or debilitated conditions, or after shock, it will be easily seen that the balance of safety in favor of nitrous oxide may belong to the conditions of application rather than to the agent. If nitrous oxide was used as ether is, it would probably have as many deaths to account for. If ether was used only as nitrous oxide is, the number of deaths would probably be as few.

The proportion of deaths to the number of cases of using either of these agents, is, however, very small indeed, and perfectly justifies their use. To refuse their use when any considerable amount of pain is to be saved, is about as irrational as to refuse to go upon the water or by the railroads. This, however, is not the case with any other anæsthetic known. It may probably be said, with truth and justice to all the interests involved, that for the production of full anæsthesia in general practice no surgeon is justified in the use of chloroform or any other known anæsthetic when good ether is accessible, because the proportion of deaths to the number of cases under the use of chloroform and other anæsthetics is very greatly in excess of those from ether, probably not less than five to one.

There is probably a chemical reason for the comparative safety of nitrous oxide and ether, although it may not be easy to show this, independently of the fact that they are safer. Nitrous oxide is a rather loose combination of two elements, both of which are very important normal constituents of the tissue present in large proportion throughout the body, and when nitrous oxide has done its work as a compound, and

splits up, either in the act of doing its work, or afterwards — or more important still, when the surplus of it either combines with other elements for elimination or splits up for new compounds, it is not rational to expect, nor consistent with known chemical laws, to find any toxic or hurtful action from either of the elements or their probable or possible new combinations. All the tissues of the body are saturated with the two elements in the air in and by which the body lives, and when nitrous oxide splits, it forms air, or enters only into such new combinations as air does. As the elements of nitrous oxide uncombined constitute atmospheric air and are continually breathed as essential to life, it follows that it is merely the combination of the elements in a given proportion that makes the gas an anæsthetic at all, and as in its action as an anæsthetic it is probably decomposed, its resultants may easily be as harmless as air — or might even be as beneficial as air. From this line of reasoning it is very hard to see how nitrous oxide can ever be poisonous, or how it could ever produce death, and it is therefore not impossible that all deaths that have occurred from either nitrous oxide or ether were mere accidents, precipitated by the anæsthesia rather than by the agent producing it; yet as they would not have occurred without the anæsthetic they are most properly charged to it.

Again the three elements of ether are all normal to the economy and go to make up, say roughly, nine-tenths of the organism. No one of the three is known to be poisonous or hurtful in itself, nor is any new combination of any two or three of the elements known to be possible under the conditions of the organism, either toxic or hurtful. Carbonic oxide, as an example of some combinations of the elements that might be formed, is known to be poisonous, but the conditions under which such compounds are formed not being present, nor, so far as known, possible, the compounds themselves are impossible. In chloroform and other anæsthetics other elements are present, less natural or less wholesome to the organism, and from which a greater number of more hurtful combinations could be calculated upon in their decomposition.

In the use of ether as an anæsthetic there is great room for reform. Just how small a quantity of ether would produce full anæsthesia in the average adult subject is not known, though that is exactly what is wanted, but it is entirely safe to say that more than half the ether taken for the purpose is wasted; — and not simply wasted but injuriously saturates both the patient and attendants. Indeed, the writer has frequently breathed the atmosphere of small ante-rooms, when patients were being etherized, where the proportion of waste ether vapor was so large as to render the air pretty certainly explosive. Ether vapor has a very considerable tension or power of diffusion, and the air becomes nearly saturated with it very quickly and very easily; and such air is very actively anæsthetic.

It is a habit in laboratories when a flask or bottle, having been washed, has to be quickly dried for use, to rinse the water out first with a little alcohol, and then to rinse out the alcohol with a little ether. Then by inserting a tube to the bottom of the bottle and drawing the air into the lungs by applying the mouth to the other end of the tube, all the ether may be quickly drawn out in the state of vapor, leaving the bottle dry and free from ether. Now this does very well with small bottles, but when the ether with which a two-gallon bottle has been rinsed is poured out as far as possible, about one or two fluidrachms remain in the bottle spread over the interior. The first and second inspirations through the tube are but partial, being interrupted by coughing or closure of the glottis, but they serve to so anæsthetize the air passages that the fourth and fifth inspirations and all that follow may be deep and full. It has often happened to the writer that before the ether vapor is all drawn out of the bottle the stage of excitement has passed, and that of anæsthesia is so well advanced that the tube can no longer be held to the lips. In a personal experiment, based upon this experience, a half fluidounce of ether contained in an eight-ounce wide-mouth bottle, was shaken round the bottle and the vapor simply smelled deeply with full inspirations, the bottle removed and shaken round during the time of expiration. Seated in an arm chair in such position as not to be likely to fall, the smelling, in less than half a minute, had passed the experimenter through the stage of stimulation, and could only be continued by determined effort, the bottle constantly tending to slip from the hand, and the arm almost refusing to move by order of the will. Sleep must have occurred before the power was entirely gone, for on waking it was found that ten minutes had elapsed since the beginning of the experiment — the bottle was found on its side on the floor, but with a considerable portion of the ether still in it.

From this it is quite certain that two to two and a half fluidrachms if all utilized in the way described, is sufficient to anæsthetize one who is quite habituated to a prevalence of ether vapors around him.

THE OHIO STATE DENTAL SOCIETY.

This association was reorganized and chartered Oct. 31, 1884. It will be officered as follows :

President, C. H. James, of Cincinnati ; Vice-President, H. H. Harrison, of Cadiz ; Secretary, J. R. Callahan, of Hillsboro ; Treasurer, G. W. Keely, of Oxford. It will meet on the last Wednesday of October, 1885, at Chillicothe, Ohio.

J. R. CALLAHAN, *Sec.*

PROFESSIONAL SERVICES AND PROFESSIONAL FEES.

BY EDWIN T. DARBY, M. D., D. D. S.

Read before the Central Dental Association of Northern New Jersey.

MR. PRESIDENT AND GENTLEMEN :

I appear before you this evening to fulfill a promise made the worthy chairman of your executive committee some months ago. But in doing so I have been beset by one of the greatest difficulties which it is the lot of an essayist to encounter, namely, the selection of a subject. I have spent more anxious thought in the effort to decide upon a theme appropriate to this occasion than would have prepared a better paper than the one to which I now invite your attention.

The subject which I have chosen is peculiar, in that it has seldom been discussed by our societies, but it cannot fail to be of some little interest, because it relates to the chief object of our toils. As a sentiment it sounds well to say that we work for the good of the public. As a fact, we work for the good of ourselves and those dependent upon us.

Professional services, like articles of merchandise, have a value, which is usually relative, but is, nevertheless, determined by the law of demand and supply. Most articles which are bought and sold are subject to this law. Scarcity of anything merchantable enhances its value. Diamonds are valuable because they are rare. If it were possible to crystallize the coal beds of Lamokin, and Scranton, and New Castle, diamonds would sell for six dollars per ton instead of two hundred per carat.

Fine works of art are valuable because they are rare. If the paintings of Michael Angelo, and Raphael, and Murillo, and West, and Turner were as common as the cartoons of *Puck*, they would be as valueless.

Fine tapestries, and laces, and cloths, and bronzes, and watches, and mechanical appliances are valuable because they are the product of skilled labor, and skilled labor is rare and commands high wages; while the former may be absolute, the latter is usually relative. The value of all articles of merchandise is determined by the law of supply and demand. It is the quantity of an article produced, and the demand for such an article, which make it valuable or otherwise. The same law will in a measure apply to professional services.

Professional services, like articles of merchandise, have a value, which is either absolute or relative, and is determined by the quality, demand, and supply.

The same law applies with equal force to all commodities. When there is a dearth in the wheat or corn crop, the price is high. When there is an excess over the demand needed for consumption, the price is corre-

spondingly low. The demand and supply regulates the price, and the price is usually the value. Ordinarily speaking, a thing is worth all that it will bring, but there are fancy or fictitious values in contradistinction to real or intrinsic. It is hardly reasonable to suppose that a horse is worth \$40,000, or a dog \$5,000, or a cow \$2,500; but cows, and dogs, and horses have been sold at these prices, and the inference is that they are worth it.

Society demands some standard of valuation, and when applied to the commodities of life it is regulated by the law above referred to.

The services of professional men do not, strictly speaking, come under this head, for every man is, in a certain sense, a law unto himself. It is true that some professions have their scale of prices, or fee bills, as they are termed. The lawyer has a certain fee for drafting wills, and deeds, and mortgages, and replevins, and judgments, but these are formulated writings which can be deputed to another; hence, a fixed price is usually charged for such writings. When the question is one of opinion, the fee is variable, and may be high or low, just in proportion as his services are much or little sought after. Strictly speaking, a lawyer's fee is what he charges for his individual services; the value of his opinion, the price of his retention in a case. His retaining fee may be \$5 or \$50,000, and is determined by the importance of the case, the labor required, and in some instances by the fatness of his client's pocket-book. Physicians have a fee-bill, or scale of prices, but they seldom adhere to it, and with most practitioners it is a dead letter. It stipulates what shall be the minimum charge for an office or residence visit, but does not say what the maximum charge shall be. The public have just about as correct an idea of its meaning as they have of a gas meter after reading the directions on a gas bill.

As a rule physicians are underpaid. No class of professional men do more work gratuitously than does the conscientious practitioner of medicine. He is at the beck and call of the poor and lowly, and in the earlier days of his professional career receives more "God bless you" than substantial fees. It is only when he becomes celebrated that he begins to reap what he has sown during the years of his obscurity. One of the most celebrated physicians of Philadelphia once told me that when he began the practice of his profession in that city his fee for a visit was twenty-five cents, and he was thankful if he collected that.

The men whose names are historic in medicine, and those who are now celebrated, have risen from obscurity, and have received small fees in the beginning. To the beginner a small fee is better than no fee at all; a half loaf better than none; and the practitioner who has worthy aims is better content to attend the poor for insignificant fees than to sit in his office and wait for the calls of the rich. The medical man who did most

for small fees at the beginning is generally he who has done most for large fees in after life. A century ago a young man of obscurity graduated from the University of Edinburgh, and at once settled in the city of London. He paid six shillings and six pence for his room rent, and received from his practice the first year five pounds (£5); but in after years when swaying the surgical scepter of England, as Sir Astley Cooper, his practice in a single year amounted to £23,000.

If statistics are reliable the American public receive their medical attention at a very small cost *per capita*. Recent calculations have shown that in the city of Philadelphia, where there are, perhaps, a greater number of physicians in proportion to the population than in any city in America, the average annual income of physicians from their practice is less than \$1,200.

The quality of professional service determines its value. It sometimes happens that the public obtain the services of skillful men for less than they are worth, but, on the other hand, they often pay exorbitant fees for ignorance or malpractice. There is, perhaps, nothing for which money is paid that is so uncertain in its value as professional service, nor is there any subject upon which the public show a greater amount of ignorance than in the matter of professional skill. No better illustration of faith could be found than is daily witnessed by the medical man. The public opens its great mouth to skillful and unskillful alike, and allows the quack and charlatan to pour, as Voltaire has said, "drugs of which they know little into stomachs of which they know less." Society, like a wagon wheel, runs in ruts. It not infrequently happens that men of mediocre attainments have become celebrated and affluent, because the tide set in their direction. People patronize a man because the *elite* of the village or city do so, and often pay exorbitant fees for services which are of themselves valueless. It is sometimes more profitable to become fashionable than to become skillful. Who of us cannot recall men whose offices are thronged with admiring patients, joyously paying large fees for inferior services, while his professional neighbor, conscious of superior skill, languishes in poverty and obscurity!

Few people are able to judge of the value of anything outside of their own specialty. Nine-tenths of those who purchase judge of the value by the price asked. They reason that a thing must be good if it be high in price. They apply the same rule to professional services that they would in the selection of an India shawl. It is not the ignorant and superstitious alone who thus estimate values. Some years ago an intelligent physician called upon me to ask the quality of some operations performed for him by a dentist in a little village where he was spending his summer vacation. He employed him because he had leisure, and *presumed* he was skillful. He had no reason to doubt the quality of the

service rendered until he paid the bill. The price charged was one dollar per cavity for gold fillings, many of them large. The operations were beautiful; had he paid five or ten dollars each instead of one, he would have been sure the work was good. I recall another case, the reverse of this, but which illustrates the argument. A gentleman about going abroad, to be absent a number of years, asked me to whom he should apply in case he needed services while there. I gave him the names of several whom I believed good men and true. When he returned, some years after, he told me that he had been in the hands of one of the gentlemen, and had five gold fillings inserted, for which he paid the modest sum of \$400. He did not question the quality of the work, but thought it just a little dear in price. It is one of the characteristics of humanity that it appreciates most that which costs most, whether it be of money, of labor, or of sacrifice. It has often been said that the professional man has ample opportunities for deception and fraud, and the saying is undoubtedly true. He has it in his power to palm off ignorance for knowledge, poor work for honest service, and may extort from his patient extravagant fees, while another would be satisfied with reasonable ones.

There is, perhaps, no calling in life where innate honesty is more essential than in the practice of dentistry. The dentist can conceal his mistakes and blunders almost as well as the physician; if he be shrewd as well as dishonest, he can deceive his confiding patients at every turn, and it may be months or years before they are aware of it.

During the last quarter of a century great changes have been made in the methods and value of service in our specialty. The introduction of cheap bases for artificial teeth, and the increase of more than eight thousand practitioners of dentistry, have had a tendency to lower the standard of excellence, and to materially affect the price of dental operations. I am not prepared to say that the introduction of rubber, celluloid, and other cheap bases has been a curse to the public, but I am strongly of the opinion that thousands of valuable natural teeth are annually sacrificed, and their place supplied by miserable plates at miserable prices. So great has become the competition in the country, and even in some of our city offices, that whole dentures are furnished at the small sum of ten dollars.

I met a gentleman a few weeks ago, in the interior of New-York State, whom I had known twenty years ago as a reputable practitioner. He said that so great had become the competition in his own vicinity that he was now making whole upper and lower sets of teeth for ten dollars, and others were doing it for less. Gold fillings were inserted for one dollar, and amalgam and other plastics for fifty cents. The demand was for cheap work, and there were more than enough dentists to supply the demand at those low rates. So little skill is required in the construction of

these cheap bases that in the past the blacksmith has forsaken his anvil, and the joiner his plane, and with forceps, impression cups, and vulcanizer, he has itinerated the country, supplying the demands of the people.

In mercantile pursuits competition is said to be the life of trade, but its twin sister, over-production, has been the death of many. When the supply exceeds the demand, prices are low, and often ruinously so. Our country is at the present time experiencing the baneful results of over-production. Factories and mills are being closed, and coal mines are being flooded, and the laborer and operative are suffering for employment. History has shown that whenever there has been depression or a panic in business, the professions have had a large influx. Our medical and dental schools have opened the present year with large classes, and will continue to do so until the depression ends.

Of late there seems to be a growing belief that the dental profession offers one of the most lucrative fields in which to labor, and it is sometimes amusing to know the estimate which people place upon our work and our pay. A business man, who had several sons approaching manhood, called upon me recently to ask my advice about one of them whom he thought of educating in dentistry. He said his son leaned toward dentistry, and as it seemed to be an easy life with big pay, he himself believed that he could not do better than to start him in the "business." My reply to him was to the effect that if he expected his son to have an easy life with a fat purse, he had selected the wrong calling. The two conditions are incompatible. The men who have been successful in dentistry have had laborious lives, sacrificing health, recreation and enjoyment, and, as a rule, dying an untimely death.

The average dentist is poor; poverty sat by his cradle, was his playmate and companion through life, and often follows him to his grave.

If we have fine homes and the comforts which others enjoy, it is because we are diligent in business, prudent in expenditures, and conscientious in our dealings with those who employ us. Notwithstanding we have trials and perplexities (and I sometimes think the dentist has more than others), it is encouraging to believe that the more intelligent of every community appreciate the laboriousness of our lives and pay our fees cheerfully.

But there comes a period in the life of every dentist who has been successful in attracting a large clientele, when the matter of fees or charges for his services become one of the problems which he must solve. In the earlier years of his professional career, when patients are few and his reputation yet unmade, he is better content to accept small fees than to sit in idleness. His modesty in the matter of attainments, and his timidity lest he drives some away in consequence of his charges, prompt him to keep his fees below those of other men engaged in the same calling, and

often below their actual value. But when in after years his services are sought by greater numbers, and his appointment book is filled for weeks or months ahead, he begins to feel that his experience has enhanced the value of his service, and he instinctively puts a higher moneyed estimate upon his skill. The tyro may perform a given operation as well as the man who has had twenty years of experience, but the beginner lacks the judgment which twenty years of experience will furnish him. Hence he lacks that which will enable him to decide when and how to perform a given operation. If your services and mine are worth more than the services of the newly-made graduate of one of our colleges, it is because we have had the experience of ten, twenty, or thirty years, and with it the accumulated skill which these years of experience must bring us. How, then, is the man of experience to regulate his charges? We have seen that competition in the country has lessened the standard of excellence, has reduced the price of professional service to that of mechanic's wages, has killed ambition, and has been the cause of the sacrifice of thousands of valuable teeth.

Professional men ought never to compete in anything save excellence.

The fee system of Europe has some features which commend it to our American practice, but it has defects which it is to be hoped will prevent its adoption in this country.

The English fee is a guinea for consultation, extraction, and ordinary stoppings (fillings). For the minor operations it would seem to us an excessive charge, but the expectation is that the average will be made good in the more prolonged or difficult operations. Having a given fee for each sitting, whether it be long or short, the tendency is to make it as short as possible. It is not an unusual thing for a dentist in full practice in England to see from twenty-five to fifty patients in a day, receiving from each a guinea. An American dentist would not feel that he could do justice to half that number. Patients of mine, who have sojourned in England and been in the hands of English practitioners, complain at the aggregate cost of this system of charging. Assuming that English operative dentistry is equal to ours (which it is not), the cost to the patient would be greater than the charge of the average American dentist of ability for a similar amount of work.

The French and German-American dentists have a similar fee. The usual fee in France is a napoleon, or about four dollars American money. The German dentist proper has a mixed way of charging, but the German-American dentist has a minimum charge of fifteen marks, or about three dollars and seventy-five cents of our money, and often doubles it for a sitting of any considerable length.

It is to be presumed that in countries where amalgam and the plastics are more commonly used by the better dentists, this system would work

better than with us, who use a larger percentage of gold for filling teeth. Perhaps the most just way of fixing one's charges is by the hour, or the time system, and the testimony of those who have tried it for years is to the effect that it is more satisfactory to the majority of patients. In cities, and among practitioners who confine themselves exclusively, or nearly so, to operations upon the natural teeth, it has much to commend it. It insures to the dentist pay for his time, and time is his stock in trade. It insures to the patient painstaking work, because the operator has no selfish motive to hurry. It prevents misunderstanding in the matter of accounts, for the patient can keep his own reckoning. It is more professional, for it is a charge for time and service, and not for material. It inculcates the adage that time is money, and so prevents loitering and needless conversation. But you tell me that the dilemma is unchanged, and how is the dentist to estimate the value of his services per hour? One man is slow in his movements and gentle in his touch; another is as quick as lightning and accomplishes much more in a given time; hence his services are cheaper to the patient if the price per hour be the same. I am free to admit that there is force in the objection, but the price per hour need not be the same. Every man has a pretty correct idea of the value of his time. He knows, or should know, what income he should receive for a year's service. Let us occupy a moment in details. Of the three hundred and sixty-five days in a year, fifty-two are, by custom, set apart as days of rest, leaving three hundred and twelve, exclusive of holidays. But no dentist should, and few can, pursue their calling without periods of recreation. A month is too little, but it is better than nothing. Let us subtract, then, forty days for pleasure, leaving two hundred and seventy-two working days. The average dentist, in full practice, stands at his chair seven hours per day (if he does more he dies earlier), making a total of nineteen hundred and four hours. From this a liberal reduction must be made for unavoidable delays and unaccomplished purposes, reducing the number of paying hours in a year to about eighteen hundred and fifty, which at five dollars per hour would amount to \$9,250; or at ten dollars per hour to \$18,500. These fees may seem high to some, or low and reasonable to others. They are about the average prices charged by dentists, whether it be by operation or by time, and are as low as the public can expect from professional men who devote their lives to the task of saving teeth. Few men engaged in our calling have amassed a fortune, or even a competence; but if the facts were known, it would be seen that the men who have been uniform in their charges and methodical in calculating the value of each moment and hour are those who have accumulated most and served the public best.—*Independent Practitioner.*

A MONKEY IN A DENTAL CHAIR.

The St. Louis *Globe-Democrat* is responsible for the following : A few days ago an Italian vender of cheap music halted with his hand organ and monkey in front of the dental parlors of Dr. J— on West Jefferson Street. The doctor is a man of science, and, having studied Darwin's theory, had expressed a desire to pull and examine the eye-tooth of a monkey to see if he could trace any relation between it and the similar tooth of a human being. Presently the band, or rather the organ, struck up a melancholy tune, and, as the first notes reached the ears of the dentist and a patient whom he was operating upon, a large spider monkey, dressed in yellow, with a red cap stuck jauntily on its head, sprang in at the open window and sat on the sill, as if waiting an invitation to enter.

The doctor requested his patient to vacate the chair, and when he had complied motioned the "connecting link" to take a seat. The monkey did so, leaning back in the chair and opening his mouth as naturally as a human being. This was what the dentist wished, and seizing a pair of forceps he took a firm hold of an eye-tooth. The monkey screamed and wrapped legs, arms and tail about the doctor's left arm in a death-like grip, but the doctor did not let go, and after a desperate struggle the tooth was torn from its fastenings. The monkey fell back in a dead faint, and after placing his prize in a drawer of the cabinet the doctor threw some water in the animal's face, and when it had revived placed it back on the window sill.

The organ-grinder, seeing the monkey reappear, supposed he had got the coveted nickel, and accordingly jerked on the string attached to it, calling: "Come a la, come a la." His pet, however, sat for a moment as if dazed, then seeming to realize his surroundings, began slowly to descend to his master, and, getting near the organ, he sprang upon it, the blood running from his mouth. The man examined it with surprise, then, looking up to the window, howled:

"Caramba! what e hell for pull monkey tooth? I not want monkey tooth pull! You come a la down here I lickee you!"

"What in the deuce did you send your monkey up here for? He can't talk and I thought he wanted a tooth pulled," responded the doctor.

"No! no! no! Caramba!" shouted the Italian, growing purple with excitement and stamping the ground in rage.

"Look here!" shouted the doctor, "you come up here and pay me fifty cents for pulling the tooth or I will have you arrested."

The organ-grinder for an instant looked at the doctor's threatening attitude in astonishment, then shouldered his music-box and marched off grumbling. Just after dark the same evening there was a ring at the doc-

tor's door-bell, and upon answering it the doctor found the son of sunny Italy standing on the threshold. Fearing he had come to use his stiletto, the dentist retreated behind his operating chair, picked up a weapon and stood on the defensive, but the dispenser of stale music only looked around the parlor, grinned with a merry twinkle in his eye, and inquired, "What you do with a monkey cap?" The doctor found the cap and the musician went on his way rejoicing.

A NEW METHOD OF PLACING THE OLD-FASHIONED PIVOT CROWN.

BY DR E. C. REDGELL.

I have quite recently struck upon a plan for setting crowns, which for simplicity, strength, durability and neatness I don't think is excelled by any of the modern methods.

I will thus describe it: Consider a root in a healthy condition, file or grind it down some distance below the gum, burr or ream out the canal as near the apex of root as possible, cut the walls around the orifice freely, if the wall of the root is no thicker than paper at the orifice it makes no difference; select a common pivot tooth of size and color to correspond with the natural teeth; measure the depth of the canal and socket in pivot tooth and cut from one of Howe's screw posts a pivot of the required length; dry the canal and fill, about one-fourth full, with cement (I prefer Caulks), and while it is yet quite soft press your pivot with the crown on it home; leaning the crown in any desired position at this time, as this will determine its future position; hold it so for a few minutes, then remove the crown, leaving the post fixed in the cement.

Now fill the remainder of the canal with gold or amalgam flush (I prefer amalgam), and while soft put the crown on the post and give it a few gentle taps; you can make a magnificent fit.

Then fill the socket in the crown half full of cement, put it on the pivot, and press home, holding it for a few minutes, when your work is done.

If you should anticipate future trouble and wish to treat the root through the canal, file the threads off the post that enters the crown before putting it on, then the crown may be very easily removed at any time by taking a pair of forceps and turning it, which will sever it from the cement; with a pair of pliers you can unscrew the post and have access to the root without irritating it or breaking any of your work.

By bending the post, grinding the crown or not, you can give most any of the divergencies necessary for the crown. By this method the root

can be entirely covered with the filling; you can take weakest kind of roots and put strong and durable work on them.—*Southern Dental Journal*.

A NOVEL FILLING.

CASE UNDER CARE OF A. H. TESTER, D. M. D., L. D. S., ENG.

The following incident in practice may be of interest to our readers:

N. B., æt. 27, called on me some time since in order to have his mouth examined. On examining his teeth, I found them remarkably good, with the exception of a few crown cavities. In the first lower molar on the right side I found what appeared to be a very good crown amalgam filling. I examined it carefully, and to all appearances it was very compact, the edges being neatly trimmed and smooth. The patient expressed regret at not having paid proper care and attention to his teeth, and said that he had not been to a dentist before. I replied that I thought he must have made a mistake, as I could show him one very good filling in his mouth which I considered very well done, and likely to preserve his tooth for some time.

He again assured me I was the first dentist he had ever consulted, and as regards the filling I had found it had occurred in the following manner: Last season on returning from duck shooting, he remembered while dining on the proceeds of his day's sport, to have bitten on a shot; which was forcibly driven into a cavity existing in this tooth, which had been slightly sensitive prior to this.

Finding he could not remove it with a toothpick, he had taken to grinding on it, and as it caused him no pain or trouble, had eaten on it ever since. I told him I did not wish to remove it, as it had done such good service, but asked him to take special notice, and let me know from time to time how it was progressing.—*British Journal of Dental Science*.

IT MAY NOT be generally known to the profession that the Buffalo Dental Manufacturing Co., besides manufacturing a large line of dental goods, also manufacture—under an exclusive right for the United States—all of the extensive Chemical Laboratory and Gas-Cooking Apparatus, designed and patented (in England and the United States), by Thomas Fletcher, F. C. S., of Warrington, England. The efficiency of the chemical laboratory apparatus has long since been recognized by nearly all the educational institutions in this country, by placing either a full line or a portion of the apparatus in their laboratories; especially is this so as regards the multifarious gas-heating devices.

Dentists in this country have looked upon Mr. Fletcher as one of their profession only, owing to the introduction some time since of his superior filling materials; but a scientific and investigative turn of mind long ago severed his connection with dentistry, and chemistry, metallurgy and manufactures now claim his whole attention. Mr. Fletcher's gas-heating apparatus and devices have already attracted the attention and won the admiration of the scientific world.

In experimenting to perfect his laboratory apparatus, Mr. Fletcher was led to perfect the existing defective gas-cooking stoves and ovens. The manufacture of this last venture has been a gratifying success, and in England and in this country his gas-cooking apparatus for household purposes has been deservedly popular. In England the demand for the domestic appliances has been so great that the extensive manufactory has been enlarged several times, till it is now the largest of the kind in the world.

Advices lately received convey the gratifying intelligence that at the International Health Exhibition, just closed in London, Mr. Fletcher has been awarded the gold medal of the Society of Arts, as will be seen from the following notice from the *Manchester Guardian*; also the gold medal of the International Health Exhibition. The two highest awards at the disposal of the juries were *both* given for the same apparatus — a distinction both just and unique:

AWARD OF THE SOCIETY OF ARTS GOLD MEDAL TO MR. FLETCHER.

At the International Health Exhibition several prizes were offered by the Society of Arts, and among others one called the "Siemens' prize," a gold medal, or £20, for the best application of gas to heating and cooking in dwellings. We have much pleasure in announcing that Mr. Thomas Fletcher, of Warrington, the well-known manufacturer of gas-cooking, heating, and scientific apparatus, has received the following letter from the Secretary, informing him of the award: "I am directed to inform you that the 'Siemens' prize,' offered by the Society of Arts at the International Health Exhibition for the best application of gas to heating and cooking in dwellings, in class 24, has been awarded to you for your exhibits in that class (shown through Messrs. Deane). The prize consists of a society's gold medal, or £20, and will be presented at the opening meeting of the society on the 19th of November next."

The Buffalo Dental Manufacturing Co., as before stated, are the sole agents of Mr. Fletcher in this country, and manufacture extensively both his Chemical Laboratory, and Household Gas-Cooking Apparatus.

New and complete catalogues of the above-mentioned manufactures have recently been issued, also a new catalogue of Dental Specialties, either of which can be obtained upon application.



THE people of Newark, N. J., were thrown into a fever of excitement last October by the appearance of a swarthy, little French woman, wearing a crown of gems, and dressed in a combination of Chinese,

Arabic and Japanese costumes, who extracted teeth with surprising dexterity, *without pain* (?) or pay, and would cure neuralgia, paralysis, and heal cuts and wounds, in five minutes. The public extraction of teeth, however, was only a means of advertising medicines, which sold rapidly at the rate of something like \$350 a day.

As to the extraction of teeth she is reported to have said, through an interpreter: "My family was noted for centuries for skill in extracting teeth, and I studied and practiced in European colleges. That bundle of paper contains my license. I spent thirteen years in England and France, and I have never pulled the wrong tooth. Dentists are the hum-bugs, for they make such a fuss over such a simple thing as pulling a tooth that people get frightened. You see I use only the regular dental instruments, and yet I give no pain. I can tell in a second with my finger the condition of a tooth, and then I pull it as quickly and easily as a chicken picks up a grain of corn; I have been in the United States two years, and in that time I have extracted nearly 200,000 teeth. During my life I have pulled, according to an estimate made a year ago, over 1,600,000 teeth."

It finally transpired that the lightning tooth-puller had only a pedlar's license, and therefore no legal right to operate on the public streets, and her career was suddenly cut short by the interference of the authorities, to the great relief of the gentle dentists of the city.

THE *New England Journal of Dentistry* has ceased to exist. Arrangements for the consolidation of the defunct journal with the *Archives of Dentistry*, published at St. Louis, have been completed. Judging from the November No. of the *Archives*, the *New England Journal* had not only consolidated with, but completely extinguished the *Archives*; the "title head" and all "running heads" of the last-named journal read *New England Journal of Dentistry*. Nothing but the cover remained of the *Archives*.

THE DENTAL DEPARTMENT of the University of California graduated the following gentlemen at the November commencement: George Washington Cool, John Michael Dunn, Archibald Duncan Gleaves, Robert Nicol, Gustave Carl Rietzke, William Henry Simmons, Elmer Joseph Weldon.

THE FIRST odontological journal ever published in Russia is to be issued at St. Petersburg on January 1, 1885, under the editorship of Dr. A. P. Sinitzin. The new enterprise is to be called *The Dentary Review*.

MISCELLANEOUS NOTES.

A Question in Anatomy.—"That is rather a shabby pair of pantaloons you have on for a man of your position."

"Yes, sir; but clothes do not make the man. What if my pantaloons are shabby and worn, sir? They cover a warm heart, sir."—*New-York World*.

He leaned over the piano and gazed upon her face, enraptured as she sang. Indeed, so intent and absorbed were his eyes fastened upon her countenance that a friend remarked in a low tone, "You seem lost." "Oh, no, I'm not lost," he whispered. "I filled her back teeth about ten months ago, and I'm observing how the filling lasts."

The Woman's Toothache.—She looked in at the dentist's door, says the *Lewiston Journal*, and said she had a tooth she believed had a cavity in it; maybe she'd have it out if it wouldn't hurt any. The dentist assured her he never hurt anybody. She said she expected her teeth would come awful hard. They wasn't like anybody's else. He said he guessed that was so. She said she knew it would kill her to have a tooth pulled for she couldn't stand anything. She knew she would faint or scream, or do something horrid and the like o' that; she always did. He said he didn't believe she would do so very badly, but she said she would; she wasn't like anybody else in this world; and her teeth were awfully sensitive. Mary Ellen Jones could sit right down any day and have any amount of teeth out, and the like o' that, but she never could. She knew she couldn't. She said she could fly right up through the roof to think of it. The dentist said she might take something, but she said she couldn't, she shouldn't dare to. She'd heard of a girl out West who took laughing-gas, and she laughed three weeks and the like o' that, and all the family went crazy; and she didn't want to drive her family crazy, for if their girl went away they were going to break up this summer and go down to the beach, and she was doing everything she could to make it hard for the girl, so she would go away, for she'd heard there was a lovely rink down to the beach, and the like o' that, and she wanted to go. And then she asked the dentist if he thought her mouth would be a good one to fit false teeth to. He said she'd better sit down and let him look at the one that ached, but she said she wouldn't trouble him to-day. The tooth didn't ache any then, she didn't know as she could tell which one it was, and maybe 'twas only tired; she'd chewed so much spruce gum this spring, and the like o' that; anyway, she wouldn't bother him. She s'posed dentists were awful busy folks. And she gave place to an unshaven man, who jumped five feet in the air when the dentist pulled out a molar with inch fangs.

The Works of Darwin are not allowed to be issued from the circulating libraries of Russia, and a recent Imperial decree puts those of Agassiz, Huxley, Lubbock, Adam Smith, Lewes and Spencer on the same list. The new list is not confined to English and American authors, for Moleschott, Buchner, Vogt, Reclus, and others are considered unsuitable for Russian readers.

Professional men ought never to compete in anything save excellence.—*Edwin T. Darby*.

BOOK NOTICES.

A COMPLETE INDEX TO THE DENTAL COSMOS. Compiled by James E. Dexter, M. D. S., at the instance of A. L. Northrop, D. D. S., M. D. S. Vols. i. to xxiv., inclusive. Philadelphia, 1884. The S. S. White Dental Manufacturing Co. Price in half Turkey morocco, \$6.00. Sent by mail on receipt of price.

We are happy to acknowledge the receipt of this index and can readily appreciate the immense amount of labor involved in its preparation. To the busy practitioner, the lazy practitioner, the industrious student, or the indolent student, the index is really a great labor-savor. In fact the labor has been done—and well done—by other hands.

As the "Dental Cosmos" is found in nearly every dental office—or supposed to be—this index possesses a value practically inestimable for the quick and ready reference to subjects or subject-matter contained in the volumes i. to xxiv. The index itself is a volume of 367 pages and contains 30,000 references. Just think of it! It is handsomely gotten up, both as regards typography and binding, and reflects great credit on the part of the publishers.

CAULK'S DENTAL ANNUAL FOR 1884-1885. A Dental Hand-Book of Reference. A pamphlet of one hundred octavo pages. Price, 25 cents. Published by L. D. Caulk, Camden, Delaware.

We are advised that the "Annual," which will make its appearance on January 1, 1885, contains a directory of nearly 100 National, State and Local Dental Societies in the United States; number of members, place and time of meeting, etc.; number of Dentists, Dealers, Manufacturers, etc., in every State and Territory, all revised and corrected, Dental Inventions of the past year, list of twenty States having Dental laws, date of passage and other information regarding them; number of Dental Colleges, when organized, graduates, etc., Dental Necrology, etc., etc. Although it is devoted to the collection and dissemination of statistics relating to the business and practice of dentistry, it will contain original articles upon practical subjects from some of the best writers, thinkers, and investigators in the dental profession, among others are Prof. Hodgekins, of the Baltimore College of Dental Surgery; Dr. Geo. L. Beers, of Montreal, Canada; Prof. J. E. Cravens, of Indianapolis; Dr. Louis Ottofy, of Dakota; Prof. M. M. Levett, of Paris, France, and others of equal standing.

Many new features will be introduced that were not contained in the previous edition, which will make the "Annual" for 1885 valuable as a book of reference to those who desire to keep informed as to the statistics of the profession.

DENTAL CARIES; A CRITICAL SUMMARY; AND THE PRESERVATION OF DENTAL CARIES. A series of papers reprinted from *The Journal of the British Dental Association*, by Henry Servill, M. R. C. S. and L. D. S., Eng. London: Bailliere, Tindall & Cox, 20 King William St., Strand, 1884.

However much we may disagree with the author's arguments and conclusions it cannot be said that he has not set forth his ideas on the subject in a clear and decidedly forcible manner. If not entirely convincing, the work will certainly furnish food for thought and opportunity for comparison with the theories of other authors. The work can be obtained by addressing the publisher as above.

VICK'S FLORAL GUIDE FOR 1885. Published by James Vick, Rochester, N. Y.

We again acknowledge the receipt of this valuable guide to those who contemplate purchasing seeds, plants or bulbs for the coming season. As usual, it is beautifully illustrated, and is by far the most artistic catalogue that we have ever seen.

ADDRESS OF HENRY S. CHASE, of St. Louis, Mo., written for the New England Dental Society, at its meeting, in Boston, Oct. 2, 1884.

It appears that the above-mentioned address was written upon the invitation of the Executive Committee of the New England Dental Society, who would not allow it to be presented. It has been published and can be obtained of the author. The address is characteristic, but scarcely deserves the treatment received at the hands of the committee.

THE PHYSICIAN'S VISITING LIST FOR 1885. Philadelphia: P. Blakiston, Son & Co., 1884.

The publishers have again favored us with their annual issue of the Physician's Visiting List. For thirty-four years this admirable book has made its appearance, which fact alone is sufficient evidence of its usefulness and popularity. As usual, each successive issue contains additional information which enhances its value very much.

"THE BOOK-WORM." New-York: John B. Alden, Publisher, 393 Pearl Street.

This is a readable little *Monthly Magazine*, containing for the year over 300 pages and many pictures, all for 25 cents a year. Each number contains attractive selections from some noted book—the last presents Prescott's famous chapter on the "Spanish Inquisition." A specimen copy of *The Book Worm* will be sent free to any address.

CHOICE LITERATURE. A monthly magazine. New-York: John B. Alden, Publisher, 393 Pearl Street. Terms, \$1.00 per year.

This magazine is filled with the choicest bits of literature of the day; not trash, but such substantial reading matter as cannot be found in any other one publication.

As an instance of its worth, we append the tables of contents of a recent number:

Luther. Part II. By James Anthony Froude.—State Socialism and the Nationalization of the Land. By Henry Fawcett, M. P.—The Saints of Islam. By W. S. Lilly.—The Analogies of Sailing. By P. G. Hamerton.—Meteorology at Home and Abroad. By R. H. Scott.—At the Docks. *Longman's Magazine*.—Concerning the Unknown Public. By Thomas Wright.—The Four Chief Apostles. Part I. By F. Godet.—King Mtesa. *Blackwood's Magazine*.—Renan on himself. *Contemporary Review*.—Jesus and Hillel. By Dr. Franz Delitzsch.—Ranch Life in the Far West. *Macmillan's Magazine*.—A Bit of Erin. *Macmillan's Magazine*.—Some Remarkable Dreamers. By A. H. Wall.

For further particulars address the publisher as above.

BOOKS RECEIVED.

CINQUIEME CIRCULAIRE ANNUELLE, 1884-'85. Ecole and Hopital Dentaires de Paris, France.

PREPARATION OF THE MOUTH for the Insertion of Teeth of Substitution. By W. H. Atkinson, M. D., D. D. S., New-York. A pamphlet of 10 pages, which can be obtained of the author.

PROBLEMS OF NATURE, devoted to scientific discussion and investigation. A very readable paper. Published at 21 Park Row, New-York City. H. B. Philbrook, Editor.

REPORT ON THE PREVENTION of Epidemic Cholera in America. Adopted by the American Public Health Association and the Conference of State Boards of Health, Washington, D. C.

REPRESENTATIVES OF PROFESSIONAL BASE BALL IN AMERICA. From P. Lorillard & Co., the well-known tobacconists, of Jersey City, we have received Root & Fisher's lithographic plate, showing the faces of the most prominent professional base-ball players. It is finely executed, and no doubt interesting to those familiar with the National game.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

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- 305,238—September 16, 1884.—ARTIFICIAL METAL TOOTH CROWN CAP.—Moses Rynear, New-York, N. Y.
 - 305,900—September 30, 1884.—DENTAL IMPRESSION CUP.—Rodney F. Crowther, Baltimore, Md.
 - 306,298—October 7, 1884.—DENTIST'S FILE HOLDER.—John G. Walling, New-York, N. Y.
 - 306,776—October 21, 1884.—TOOTH BRUSHES.—Meyer L. Rhein, New-York, N. Y.
 - 307,537—November 4, 1884.—DENTAL CAPSICUM BAG.—William L. Foulks, Philadelphia, Pa.
 - 307,579—November 4, 1884.—DENTAL IMPRESSION CUP.—Frank M. Palmiter, Fairbury, Neb.
 - 307,686—November 4, 1884.—DENTAL ENGINE ANGLE ATTACHMENT.—Eli T. Star, Philadelphia, Pa.
 - 307,921—November 11, 1884.—AMALGAM FOR FILLING TEETH.—Walter C. Davis, St. Petersburg, Bayswater, County of Middlesex, England.
 - 308,424—November 25, 1884.—DENTAL TOOL.—J. Gardiner Morey, New-York, N. Y.
-

Second-Hand and Shop-Worn Goods FOR SALE CHEAP.

INSTRUMENTS.

- One Lot Teeth Forceps, oval-jointed, of different makes, and a variety of shapes, all new. Per pair, \$1.50.
- One Pair Wedge Cutters. \$1.50.
- One Pair Plugging Forceps. \$1.50.
- One Pair Fulcrum Forceps. \$1.50.
- One Foote Automatic Mallet, in Morocco Case, with Rack and 19 Points. \$8.00.
- One Engine Porte Polisher and File Carrier, in good order. \$5.00.
- One Job Lot Steel-Handled Pluggers and Scalers, various makes, nearly all the different shapes used. Per doz., \$3.00.

These instruments are of just as good material and temper as any now made, but the handles are of different shapes and sizes.

One Shell-Handle Single Blade Pocket Lancet. 50 cents.

MISCELLANEOUS.

- Wood Polishing Points. Manufactured by the patentee, Dr. Southworth; 100 in a box. Price, \$1.25; will sell for 50c. per box.
- One Lot Jarvis Separators. Will sell for 50c. each.
- One Lot Johnston Bros. Reflectors, to attach to Rubber Dam Clamps, throwing light into cavities. List price, \$2.75; sell for \$1.50 each.
- One Pair Plate Benders, as shown on page 290 S. S. White's Catalogue. \$1.50.
- One Pair Pin Heading Forceps. \$1.50.
- One Lot Ross Polishing Powder, for polishing Rubber Plates. Put up in 1-lb. boxes. Per box, 15 cents.
- One Lot Pin Racks, for Snow & Lewis' Automatic Points. Curved, to hold 18 or 36 points, and square, to hold 24 points. Each, 50 cents.
- One Blake's Duct Compressor. \$1.50.
- Aluminum Solder, per ½ ounce. 50 cents.
- One Lot Bur Gauges, nicely Nickle-plated. Each, 25 cents.
- Plate Tooth Holder, to hold Teeth while grinding. Each, 15 cents.
- Blodgett's Tooth Wash, per dozen. \$1.00.
- One Brass-Bound Mahogany Case, 16½ x 11 x 4½ inches, as shown on page 212 S. S. White's Catalogue, without trays. Cost \$20.00; will sell for \$15.00.
- One Spencer & Crocker's Bracket, Japanned. Complete with table. Shop-worn. \$9.00.

DENTAL BOOKS.

- One Gray's Anatomy. Cloth, edition of 1870, in good condition. \$3.00.
- One Cole's Deformities of the Mouth. Second edition. \$1.50.
- One Fox & Harris' Diseases of the Human Teeth. \$2.50.
- One Hayes' Dental Register, with Diagrams of the Jaw. 300 pages. \$1.50.
- One Leber & Rottenstein's Dental Caries. \$1.00.
- One Tomes Dental Surgery. \$4.00.
- One Tyson's Cell Doctrine. \$1.50.
- One Huxley Elementary Lessons in Physiology. \$1.00.

MACHINERY.

- One Glycerine or Hot-Air Celluloid Apparatus. Cost, new, \$8.00; will sell for \$3.00. This will make an excellent flask press, having an iron pot in which the flask can be simultaneously boiled and pressed.
- Two No. 2 Whitney Vulcanizer, without heating apparatus, or flasks. Each, \$7.00.
- One No. 2 Iron-Clad Vulcanizer, without Heating Apparatus or Flasks, \$9.00.
- These Vulcanizers are some that have been repaired and not called for by the owners. They are all in working order.
- One Hopkins Gas Regulator, in good working order. \$10.00.
- One Forty-Gallon Gasometer. \$10.00.
- One Hand Lathe. \$2.00.
- One Upright Surgeon's Case, complete, with new Cylinder, and Codman & Shurtleff Inhaler, and seven-gallon Gas-bag. Case slightly worn. \$30.00.
- One Gas Apparatus, consisting of 100 gal. Cylinder, S. S. White Inhaler, Gas-bag and Tripod. All new, except Tripod. \$30.00.



ULARISTON

A SUPERIOR MOUTH-WASH.

This preparation is an improvement on a popular wash, and contains in its present form all the qualities that go to make a faultless mouth-wash for family use.

The stimulating effect imparted to the gums and mucous membranes by the use of this wash is believed to be superior to that of most washes in the market.

For sale by all dealers in dental goods.

PRICES.

Per Bottle,	\$0.40
" doz.,	4.00
" $\frac{1}{4}$ gross,	10.80
" $\frac{1}{2}$ gross,	20.40

BUFFALO DENTAL
Manufacturing Co.

REDUCTION IN PRICE.

On and after January 1, 1885, the price of the SNOW & LEWIS

AUTOMATIC PLUGGER

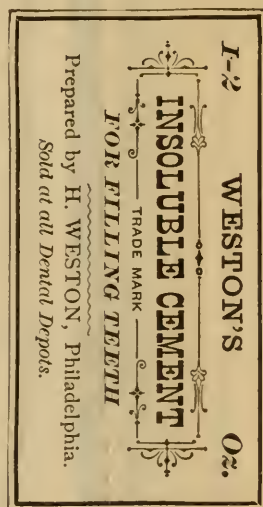
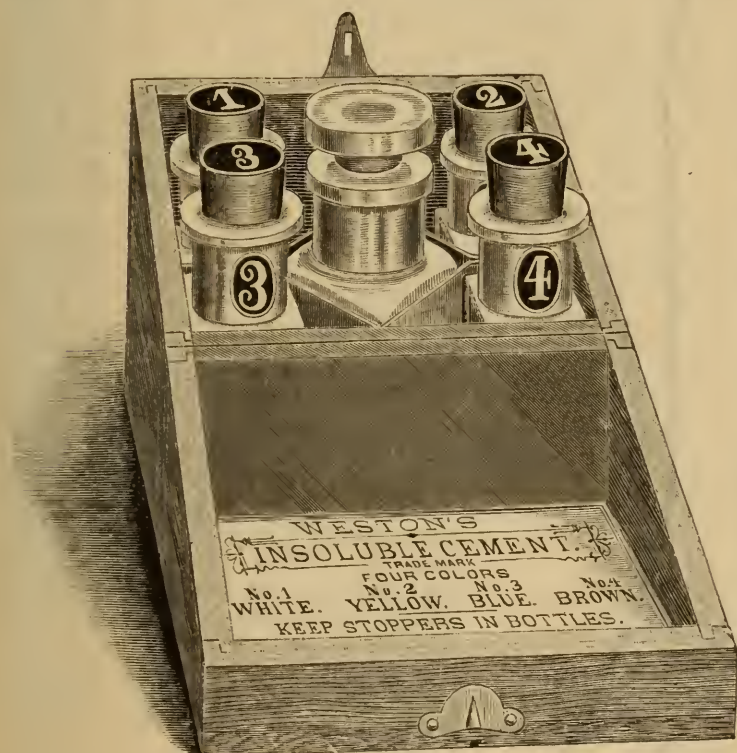
WILL BE REDUCED TO \$9.00.

BUFFALO DENTAL MANUFACTURING CO.

REDUCTION IN PRICE.

WESTON'S INSOLUBLE CEMENT.

The hydraulic properties of this Cement have been demonstrated by careful experiments out of the mouth and in the practice of those most accustomed to its use. In fact, the best results are obtained when the filling, immediately after its introduction into the tooth, is submerged in water as hot as can be borne in the mouth, and this continued from three to five minutes. Approximately the same results are produced by the rapid drying of the filling by hot air—heat, either wet or dry, hastening the hardening of the material and securing strength and durability. When used as a capping for exposed pulps, or for attaching porcelain crowns, this Cement may be hardened in two minutes by hot air or hot water, which at the same time prevents all acid reaction. When the hardening is hastened either by the hot-air syringe or by the use of hot water, varnishing the filling may be dispensed with. Directions accompany each package.



The powder for this extremely hard and durable cement is now supplied in colors which, taken separately or combined artistically, will enable the dentist to imitate the shade of the tooth to be filled. Some degree of practice will be requisite for the production of a close resemblance, and it is important to observe that a *shade darker* than the tooth is less noticeable than a lighter shade.

The colors are contained in quarter-ounce bottles, No. 1 white, No. 2 yellow, No. 3 blue, and No. 4 brown. The ounce fluid bottle has a stem extension of the ground glass stopper that serves as a convenient dropper.

The grade of the color package is a medium between the slow- and the quick-setting.

Price, four-color package,	\$2.25
“ half-ounce (one color) package,	1.50

THE S. S. WHITE DENTAL MANUFACTURING CO.

Philadelphia, New-York, Boston, Chicago, Brooklyn.

SNOW'S SALIVA EJECTOR.

Patented March 18, 1879.

**"STANDARD" STYLE, WITH THE
ROLLINS EXHAUST BOTTLE.**

CLEANLY, EFFICIENT, NOISELESS IN ACTION.

Can be Used Without a Water Supply.

This apparatus has lately been improved by the addition of the Rollins Exhaust Bottle, suggested by Dr. W. H. Rollins, of Boston. This is shown in the illustration as connected with the Standard Ejector, but it is equally applicable to the Wall Pattern. The bottle is placed under the chair, the ejector exhausting the air therefrom, and the saliva descends directly into the bottle, where it remains; the air passing over with it being drawn into and expelled from the ejector.

This addition enables the ejector to operate with greater freedom, and with less water than is required when the exhaust bottle is not used.

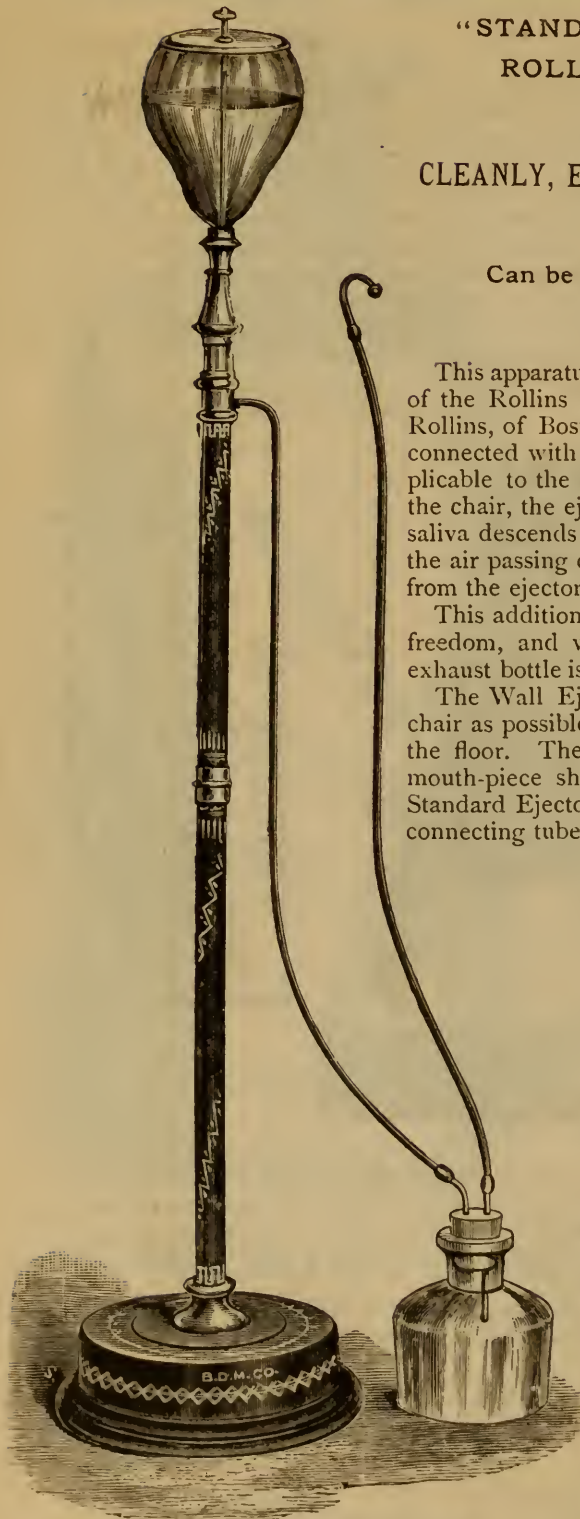
The Wall Ejector can be hung to the wall as near the chair as possible, with the lower reservoir nearly touching the floor. The connecting tube from the ejector to the mouth-piece should be as short as possible. As the Standard Ejector can be set closely to the chair, a shorter connecting tube can be used than with the wall style. If

the exhaust bottle is used, the same water can be used many times over, as it is not contaminated with saliva, and the ejector can be placed in any convenient place, a long connection being in this case admissible; a matter of great convenience in many operating rooms.

The mouth-piece and tube should be rinsed after use by allowing a tumbler full of water to run through them, and the mouth-piece thoroughly washed. It can then be replaced on the rubber tube, which it is well to remove from the ejector and hang on the wall to drain. Glass mouth-pieces may be used for the fastidious, each patient having the exclusive use of one.

PRICES.

Wall Saliva Ejector, with four feet of Rubber Tubing,	\$15.00
Standard Saliva Ejector, with four feet of Rubber Tubing,	18.00
Rollins' Exhaust Bottle,	1.00
Glass Mouth-Pieces, each, . . . . .	.20
Boxing,	1 00



"Standard" Style, with the Rollins Exhaust Bottle.

SNOW'S SALIVA EJECTOR.

Patented March 18, 1879.

"WALL" AND "STANDARD" STYLES.

This apparatus has now been in use for some time, and its merits are such that it ranks among the necessities in a well regulated dental office. It is now made in two forms—the old style, which is suspended on the wall near the operating chair; and the "Standard," which is supported by a base of cast iron which covers the receiving vessel, and which is portable. The operating parts of both are the same. The "Standard" Ejector can be set near the patient when in use, and moved out of the way at other times, and thus operates with a shorter rubber tubing for connection, and, if anything, more freely than the other.

The following points of excellence are claimed for this instrument:

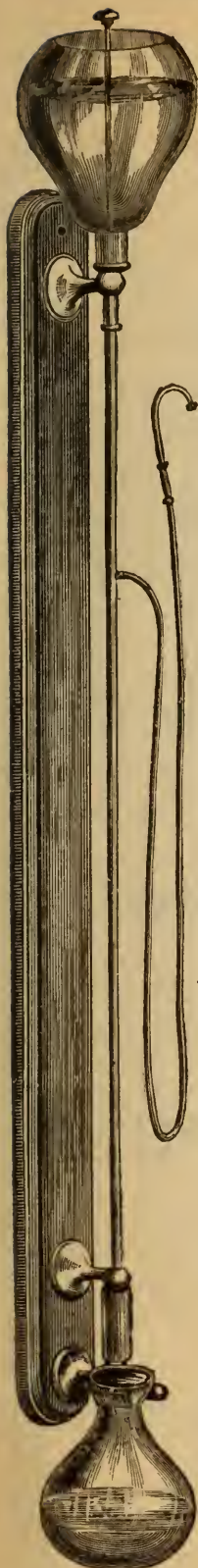
It is effective, simple, and not liable to get out of order; it is noiseless in action. It operates automatically when once set in operation, and consumes so small a quantity of water that it can be used in any office without connection with a water-supply. The reservoir at the top of the apparatus, holding about a quart of water, will be found of sufficient capacity for even protracted operations.

The water passes, by drops, into a peculiar arrangement in the upright tube, operating upon the principle of the syphon; and so produces a partial exhaustion of the air in the tube. The mouthpiece being connected thereto, the saliva is drawn from the mouth, and, on reaching the tube, falls to its lower end, and passes out through the cup there attached, and through an overflow-pipe into the lower reservoir. If a partial stoppage should occur in the mouthpiece or its connecting tube, by reason of the viscosity of the saliva, water will be drawn into the upright tube from the cup at its foot until the weight of the column of water, so raised, is sufficient to overcome the obstruction.

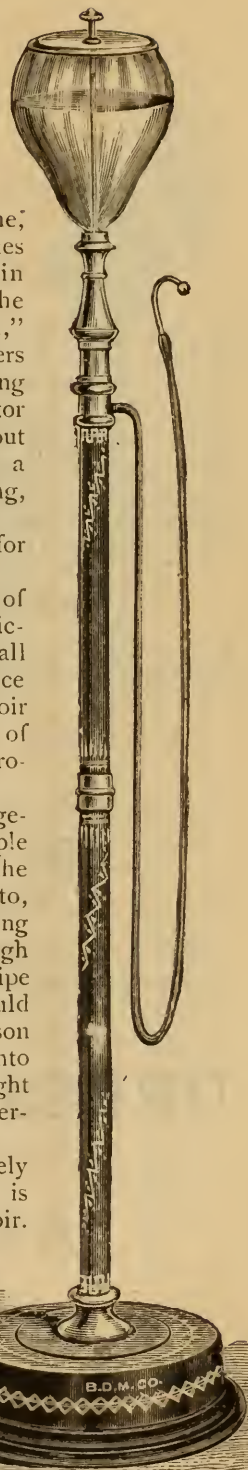
The cover to the water reservoir is made to fit closely upon the valve stem, so as to rotate with it, and is graduated on its edge, where it meets the reservoir.

PRICES.

Wall Saliva Ejector, with four feet of Rubber Tubing, . . .	\$15.00
Standard Saliva Ejector, with four feet of Rubber Tubing, . . .	18.00
Rollins' Exhaust Bottle, . . .	1.00
Glass Mouth-Pieces, each, . . .	.20
Boxing,	1.00



"Wall Style."



"Standard Style."

WILLIAMS' INSOLUBLE CROWN



An Oxy-Phosphate for Filling Teeth.

This Cement is a chemical compound, containing some of the constituents of the natural teeth, and with these organs it is in perfect harmony. It is, we believe, without exception, superior to all others, and is meeting everywhere with a large and extensive sale. It becomes as hard as bone in five minutes, or in less time if some of the powder is covered over the filling, or the hot air syringe used or hot instruments applied. It overcomes sensitiveness without deadening the nerve, and, being non-irritant, is excellent for capping exposed pulps. It resists the action of the fluids of the mouth to a greater extent than any other plastic filling material, and is particularly recommended for large crown cavities where the teeth are badly decayed away. When properly manipulated it withstands mastication in all parts of the mouth under all circumstances. After it becomes perfectly hard and is nicely polished, it looks and is as near like the natural tooth as it is possible to produce. If those dentists who have not used the Insoluble Crown Cement will give it a fair trial we feel confident that they will use it altogether. Age does not deteriorate it. Every filling is worth the price of the package.

For uniformity, strength, durability, density, quality, quantity and price, it has no equal.

PRICE PER PACKAGE, . . . \$2.50,

Each containing one ounce of powder in two colors, and one-half ounce of liquid; also two small vials filled with yellow and gray pigments, so that any desired shade can be obtained. Small size packages \$1.50.

PHILADELPHIA, June 20, 1884.

I find Dr. Williams' Insoluble Crown Cement to excel all other plastics I have ever used.

DR. S. H. MOORE, No. 1111 Vine Street.

MANUFACTURED EXCLUSIVELY BY

DR. G. W. WILLIAMS,

Germantown, Philadelphia, Pa.

Sold at Dental Depots.

N. B.—If you cannot procure this Cement from your dealer in dental supplies, remit P. O. Order or Draft to us, and we will forward, free of charge.

DRESSING FOR EXPOSED PULP

— AND —

SENSITIVE TEETH.

PREPARED BY

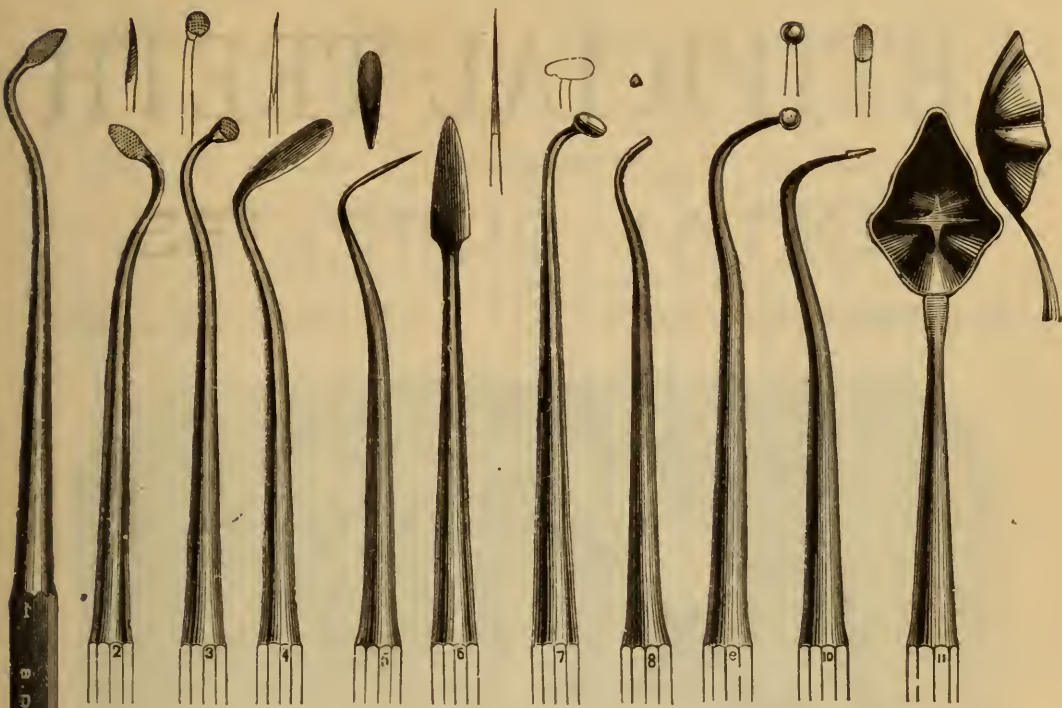
DR. A. TERRY, - - Norwalk, Ohio.

PRICE PER BOTTLE, \$1.50.

For Sale by Buffalo Dental Manufacturing Co.

New Amalgam Pluggers and Burnishers.

DEvised BY DR. THEO. G. LEWIS



This new set of Pluggers and Burnishers, designed for the manipulation of Amalgam or other plastic materials for filling teeth, is believed to comprise all instruments necessary for their proper manipulation.

They are admirably adapted for the proper working of **Fletcher's Amalgams**, and **Porcelain Cement**.

Nos. 9, 10 and 11 have been recently added to the set, although they have been in practical use over two years by the designer.

No. 11 is a very convenient form of spoon for conveying amalgams to difficult cavities in the upper teeth.

PRICES.

Lewis' Amalgam Pluggers, $\frac{1}{4}$ inch, polished and Nickeled handles,	
per set of 11,	\$8.50
Separate Instruments, from No. 1 to No. 10, each, . . . . .	.75
No. 11,	1.00

BUFFALO AMALGAM.—Made from an improved recipe. This is, for the price, a superior article; equal in its qualities for preservation of the teeth to many of those sold at a higher price. In $\frac{1}{4}$ oz., $\frac{1}{2}$ oz., and 1 oz. packages.

PRICE.

Buffalo Amalgam, per ounce,	\$2.00
---------------------------------------	--------

GIDEON SIBLEY,
MANUFACTURER OF
ARTIFICIAL TEETH
AND DEALER IN
DENTAL SUPPLIES,

THIRTEENTH AND FILBERT STS., - - PHILADELPHIA, PA.



It is gratifying to find, that after years of assiduous labor to produce the best Tooth made, their superiority is so universally acknowledged, and the rapid demand for them has necessitated large additions to our factory and salesroom.

POINTS ON WHICH WE SEEK COMPARISON :

STRENGTH, NATURAL SHAPES, TEXTURE, COLORS, LARGE DOUBLE-HEADED
PINS, &c., COMBINED WITH OUR VERY LARGE ASSORTMENT
OF MOULDS AND VARIETY OF SHADES.

Ask your dealer for them, or send One Dollar for a Sample Set.

[ja84-ry] FOR SALE BY BUFFALO DENTAL MFG. CO.

1 OZ. TROY,

\$3.00.



GOLD AND PLATINUM ALLOY.

This Alloy is prepared under the supervision of an eminent analytical chemist, which enables us to guarantee the chemical purity of the metals used.

Having been subjected to the severest tests before offering it to the Dental Profession, it has been demonstrated that it will not shrink or expand, nor discolor in the mouth, and can be used in the Front Teeth with better results than any other Filling except Gold.

PRICES:

1 Oz., \$3.00, 2 Ozs., \$5.50, 4 Ozs., \$10.00.

MANUFACTURED BY

**GIDEON SIBLEY,
DENTAL DEPOT,
13TH & FILBERT STREETS,
PHILADELPHIA, PA.**

CARD.

*IF you use other alloys
and they expand, caus-
ing your patient to re-
turn, with severe pain
in the tooth filled—*

*TRY SIBLEY'S ALLOY,
which will not.*

*IF the alloy you use
shrinks, thus allowing
the fluids to enter the
cavity, and the decay
to go on as freely as
before filling—*

*TRY SIBLEY'S ALLOY,
which will not.*

*IF in using other alloys
find that they discolor
in the mouth—*

*TRY SIBLEY'S ALLOY,
which will not.*

**IF YOU WANT A RELIABLE ARTICLE
TRY SIBLEY'S GOLD and PLATINUM ALLOY.**

We Guarantee Satisfaction.

Put up in 1-oz., 2-3 oz. and 1-3 oz. Packages. PRICE \$3.00 PER OUNCE.

THE DENTAL PRACTITIONER

**A Monthly Journal Published in the Interest of
the Dental Profession.**

ENLARGED AND IMPROVED.

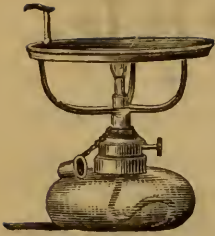
SUBSCRIPTION PRICE, 50 CENTS A YEAR IN ADVANCE.

Edited by CHAS. E. PIKE, D. D. S.

1415 WALNUT STREET, PHILADELPHIA.

Published by GIDEON SIBLEY, 13th and Filbert Streets, Philadelphia, Pa.

The Whitney Annealing Lamp.

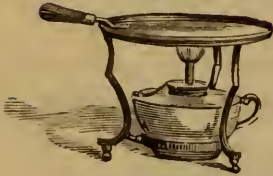


This is a glass lamp, with a thumb piece for adjusting the size of the flame. The brass frame which holds the tray is removable, and also fits the Laboratory Gas Burner, enabling the dentist to use either Alcohol or Gas. Diameter of Tray, 4 inches. Height of Lamp, $3\frac{3}{4}$ inches.

PRICE.

Whitney Annealing Lamp, \$1.50

The Lewis Annealing Lamp.

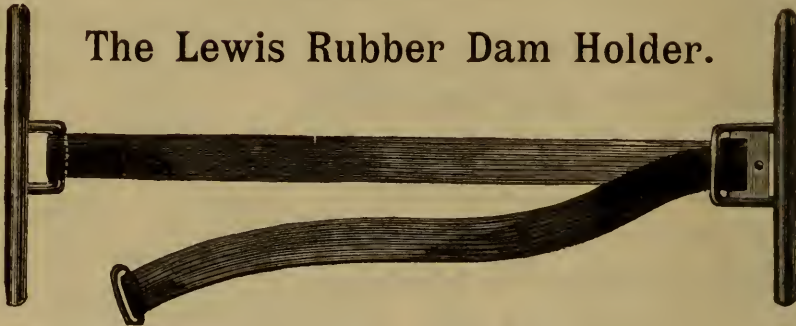


This consists of a brass ornamental tripod $3\frac{1}{4}$ inches high, holding a tray 4 inches in diameter, with Britannia Lamp.

PRICES.

Lewis Annealing Lamp, \$1.50
Lewis Annealing Lamp, Silver Plated, 3.00

The Lewis Rubber Dam Holder.



This is a device for holding the rubber dam in position while operating. It is much more effective than the ordinary Rubber Dam Holder. The rubber being smoothly stretched over the patient's lips and cheeks, is therefore entirely out of the way of the operator. The holder is secured to the rubber by simply being stretched over the ends of the bars, and is held in place by its own contraction.

The improvement consists in a slotted slide, through which the braid passes, enabling the operator to produce tension by drawing on the free end of the braid, or to relieve the strain by pushing the slide back with the thumb nail.

PRICE.

The Lewis Rubber Dam Holder, Nickel-plated, 50 cents.

Spatula for White Plastic Fillings.



This is a new pattern of Spatula (designed by Thos. Fletcher, F. C. S.,) for mixing white plastic filling materials, and is recommended more especially for the PORCELAIN CEMENT, as a broad rigid spatula with a firm grip for the hand is a necessity for the proper mixing of this material.

PRICE.

Fletcher's Spatula, Nickel-plated, 60 cents.

Caulk's Filling Materials.

(ESTABLISHED 1877.)

DIAMOND CEMENT!

THIS COMPOUND NOW STANDS WITHOUT A RIVAL.

From Three to Five Years' Test by Leading Dentists throughout the World has proved it to be all that has been claimed for it.

FOR MOUNTING ARTIFICIAL CROWNS—it has been highly recommended, is non-irritating, non-conducting, in harmony with tooth structure, has no shrinkage or expansion, and excellent for lining cavities and capping pulps.

IT WILL HARDEN IN WATER OR SALIVA. It does not deteriorate with age. We have some over **THREE YEARS OLD**, and it works as nicely as when first made. We have increased the quantity of liquid in both packages, and all bottles are lettered with "Caulk's Diamond Cement."

PRICE—(Two Colors,) Gray and Yellow, - - - - - Per Package, \$2.00
" (One Color) Gray, Yellow, Medium, Light, - " " 1.00

Caulk's Par-Excellence Alloy.

This **GOLD** and **PLATINA ALLOY** is manufactured on a new principle, has won its way into popular favor and now ranks among the best. It saves teeth where others fail. By our new method of manufacture there is no **GUESSWORK**, the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

PRICE—in one-third, one-half and ounce package, per ounce, \$3.00.

Caulk's White Alloy.

Zinc enters largely into the composition of nearly all (so-called) White Amalgams, and some of the salts of this metal are very destructive to the living matter of Tooth Substance.

This Alloy contains **NO Zinc or Cadmium**; is of a peculiar Grayish-white color, and though made expressly for **Front Teeth**, has good edge strength, and will stand mastication anywhere in the mouth.

We have made a great improvement in it, costing more to produce it, and the price is \$4.00 per ounce.

Put up in $\frac{1}{4}$, $\frac{1}{2}$ and 1 ounce packages.

When properly manipulated with **PURE MERCURY** it will retain its color under all circumstances.

The **BEST ENDORSEMENT** of it is the large amount sold during the past three years, and the increasing demand for the same.

CAULK'S DIAMOND POINT STOPPING.

This form of gutta-percha, having been in the market for several years, has stood the greatest test of all—that of time. It is regarded as the best preparation of its kind for filling teeth in the world.

We make **Three Grades**—**MEDIUM** (which is our regular and well-known D. P. S.), **HARD** and **SOFT**. Unless otherwise ordered, we always send Medium.

The stopping is put up in Sealed Envelopes, and the Pellets and Cylinders in Sealed Boxes, each bearing a fac simile of our signature.

PRICE—in $\frac{1}{8}$, $\frac{1}{4}$ and $\frac{1}{2}$ ounce packages, per ounce, \$4.00.

CAULK'S HYDRAULIC PEBBLES.

Its **HYDRAULIC** qualities render it invaluable for setting pivot teeth. It is so pliable that it can be molded or shaped into various forms, and when crystallization is complete can be carved and polished, same as the sculptor does his marble.


PRICE—large package, \$3.00. **PRICE**—small package, \$1.50.

All of CAULK'S FILLING MATERIALS are Sold by Troy Weight.

CAULK'S DENTAL ANNUAL 1883-'84.

A Dental Hand-Book of Reference. Pamphlet of fifty octavo pages. **PRICE**, 25 cts.
Second Edition now ready.

L. D. CAULK, Manufacturer and Proprietor,
CAMDEN, DELAWARE.

 Sold at all Dental Depots.

FOR SALE BY BUFFALO DENTAL MANUFACTURING COMPANY.

9y-84-1y.

THE SNOW & LEWIS EXTENSION BRACKET.

NEW VERTICAL MOVEMENT.



This well-known bracket is now capable of adjustment as to height. It slides on a vertical rod, fastened to the wall, and is retained at any height by a ratchet, so that it is *self-sustaining*, avoiding the annoyance and insecurity of clamping devices. It has a vertical motion of about eighteen inches. The extension is effected by a rod sliding into a pipe. From the parts being always in line this Bracket will be found free from that unsteadiness which is inseparable from jointed ones.

The table is black walnut and has two drawers extending through it, and opening from either side, for holding separating files and other small instruments.

All parts are either nickel-plated or finely ornamented.

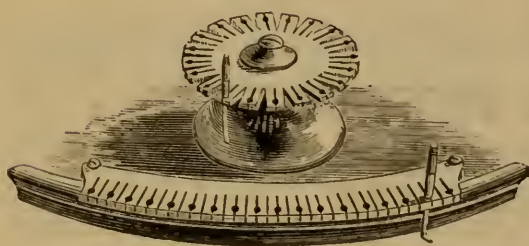
PRICE.

Snow & Lewis Extension Bracket, Nickel-Plated, . . \$15.00



THE HAYES AUTOMATIC PLUGGER POINT RACK.

PATENTED NOV. 11, 1873.



This new Automatic Plugger Rack consists of a series of spring jaws, either steel or hardened brass, between which the point is placed and pressed till a blow of the plugger drives it in so firmly that the handle can be unscrewed, leaving the point securely grasped between the jaws till wanted again.

To insert a point, the plugger is placed on the one selected, and then the same rolling motion which screws it on, instantly loosens

the point from the jaws, leaving it as firmly screwed into the plugger as it was previously grasped by the jaws.

This rack operates equally well with any of the points in market, whether with holes or flattened sides, or without either. It brings the points fairly into view for selection, and they are held there so firmly that no ordinary blow or jar can throw them out of place.

Two styles of the rack are illustrated. One to be screwed on to the edge of our round bracket table; the other, a circular rack which turns upon its stand. We have a sliding rack which can be pushed back under the table when not in use; and another straight, to be screwed on to, or under, the edge of any square table. All of these racks are polished and nickel-plated. All Plugger Point Racks heretofore made by us have been withdrawn from market.

PRICES.

Drawer Rack,	\$2.00
Circular Rack,	1.50.
Curved Rack,	1.25
Straight Rack,	1.00
Morocco Case, with Rack, see page 23,	3.50



THIS
STANDARD
PREPARATION

by far excels any

DENTIFRICE

ever offered to the public.

This assertion is corroborated by the numerous encomiums received from

Leading Dentists

in all parts of the country and by the large and constantly increasing sales.

In $\frac{1}{2}$, 1 and 4 lb. Cans.	\$1.00 per pound.
In 10 lb. Cans,	.90 "
In 20 lb. Cans,	.80 "

FOR SALE BY

BUFFALO DENTAL MANUFACTURING COMPANY

In any Quantity, Wholesale or Retail.

A. R. LUKENS.

ESTABLISHED 1866.

J. WHITTINGTON.

LUKENS & WHITTINGTON,

MANUFACTURERS OF

DENTAL INSTRUMENTS

And Dealers in Dental Supplies, 626 Race Street, PHILADELPHIA, PA.

ALL OUR
INSTRUMENTS

ARE
WARRANTED
FIRST CLASS.

FORCEPS

AND SMALL
INSTRUMENTS

OF EVERY STYLE
OR
PATTERN.



ENGINE

BURRS

AND ALL OTHER

INSTRUMENTS

REPAIRED.

ALSO

Nickle-Plating

PROMPTLY AT-
TENDED TO.

SEND FOR
PRICE LIST.

THE SNOW & LEWIS AUTOMATIC PLUGGER.

Patented October 24, 1865, October 30, November 20, 1866, June 23, 1868, and June 1, 1869.
Patent of October 30th, 1866, re-issued August 22, 1876, February 2, 1880.

THE MOST POPULAR AND EFFICIENT DENTAL INSTRUMENT EVER OFFERED TO THE PROFESSION.

This instrument, since its invention in 1865, has been improved from time to time, and has become one of the best known and most indispensable adjuncts to the dentist's operating case. It is now made after two patterns, the old and new style. The "old style" of instrument has

TWO DISTINCT GRADES OF BLOWS,

one-eighth and one-quarter inch, regulated by means of the ring on the body of the instrument; the finer graduation of the strength of the blow being attained by turning the milled head at the end of the case.

The "new style" embodies an improvement, by which all lateral motion between the socket-piece and its bearings is prevented, and future wear between the parts provided for. This insures

PERFECT STEADINESS OF THE POINT,

which can now be placed as desired with the same certainty as with a hand instrument. The new instrument has but the one-eighth inch length of blow, which can be varied in strength, as before, by the milled head at the end of the case. By means of the ring on the handle, either of

THE PLUGGERS CAN BE LOCKED

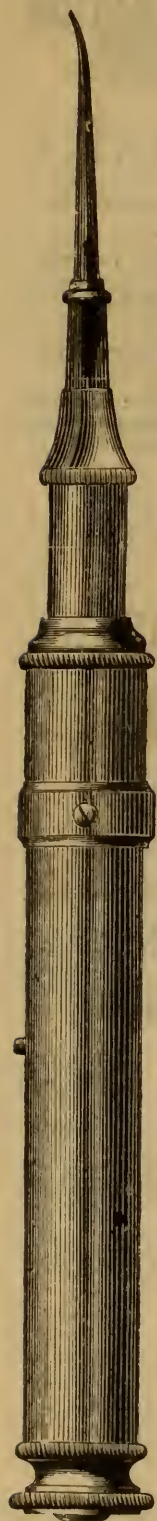
and used as a hand instrument. The above feature is not presented in any other Spring Plugger in the market.

The mechanical devices of the Plugger are protected by patents, embracing all points of any moment applicable to Automatic Pluggers, and we hardly need say that we shall strictly enforce all the rights secured to us therein.

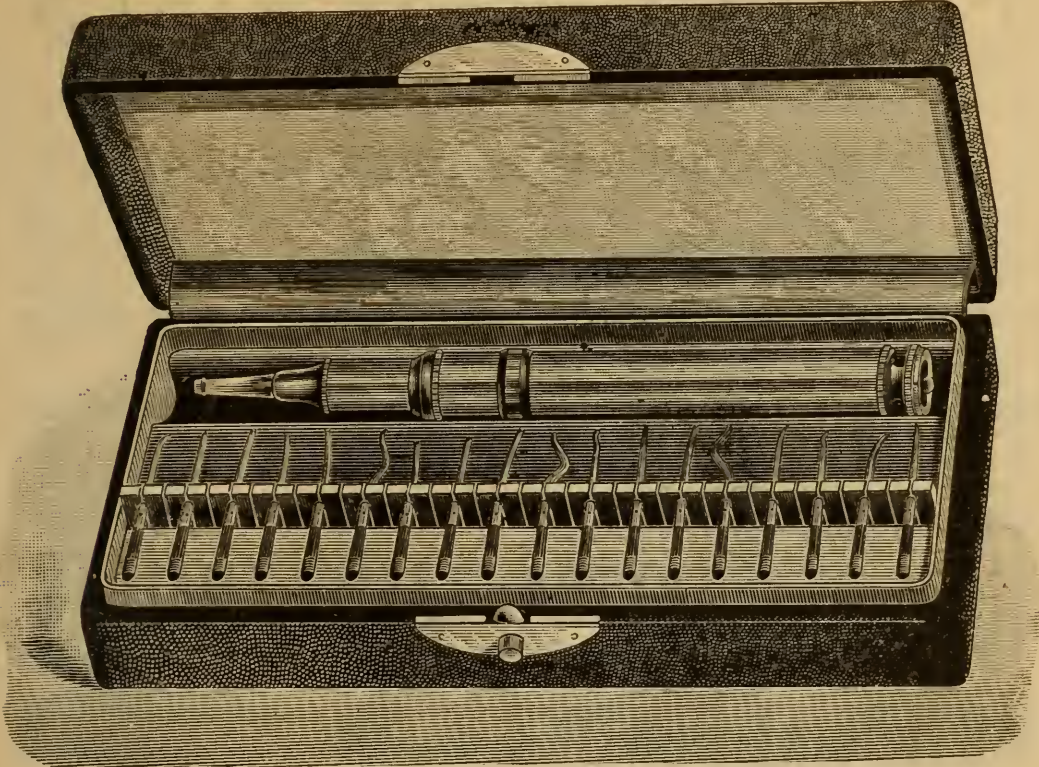
PRICES.

Automatic Plugger, triple Gilt, No. 1 or 2,	\$13.00
Automatic Plugger, Silver or Nickel-plated,	9.00
Points, per dozen,	3.50
Varney's Points, per set of 13,	7.00
Butler's Points, per set of 16,	6.00
Enamel Chisels, per set,	2.25
Morocco case, with Point Rack,	3.50

Points of any desired pattern furnished to order.



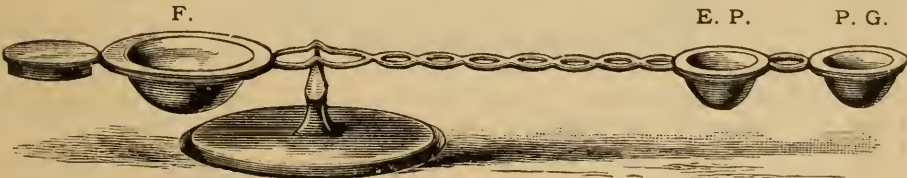
MOROCCO CASE FOR THE SNOW & LEWIS AUTOMATIC PLUGGER.—This case is of morocco, velvet-lined, and contains a Snow & Lewis Automatic Plugger and 18 selected Plugger Points, supported by a Hayes Point Rack, Nickel-plated.



PRICES.

Snow & Lewis Automatic Plugger, Silver or Nickel-Plated, 18 Plugger Points, Point Rack and Morocco Case, complete,	\$17.50
Morocco Case, with one Point Rack, for 18 points,	3.50
Morocco Case, with two Point Racks, for 36 points,	5.00

FLETCHER'S DIFFERENTIAL BALANCE FOR AMALGAMS.—This new balance for obtaining the proper proportions of filings and mercury is so simple and precise that it is indispensable when uniformity is desired. The resulting mass is always the same, whatever the nature of the alloy may be.



New Pattern—Nickel Plated.

To use the method, weigh with the new differential balance the proportions required, by putting mercury in the cup E. P. for the Extra Plastic Amalgam, or in the cup P. G. for the Platinum and Gold Amalgam, then pouring filings into the cup F., until the mercury is balanced.

F.—E. P. gives 3 of filings to 1 mercury (Extra Plastic). F.—P. G. gives 4 of filings to 1 mercury (Platinum and Gold).

PRICE.

Fletcher's Differential Balance, 75 cents.

FLETCHER'S FILLING MATERIALS

The value of these materials is sufficiently proved by the

STEADY AND RAPID INCREASE IN THE DEMAND,

and by the numerous and entirely unsolicited testimonials which are constantly coming to hand from various quarters. This is doubtless due, in a great measure, to the fact (well known to most Dentists) that no Amalgam is allowed to leave the laboratory which does not fully, and in every detail, fulfill the test appointed for it, which is in every case amply severe. This system of testing is, and will continue to be, scrupulously adhered to.

All Amalgams having the name of THOS. FLETCHER, F. C. S., on the packet are prepared and tested personally by Mr. Fletcher, in England.

PLATINUM AMALGAM.

PLATINUM AND GOLD ALLOY.

—Packs extremely well under water. Sets very quickly. Becomes intensely hard and dense. Is remarkably free from discoloration if finished and polished. Produces plugs absolutely moisture tight. Does not discolor the tooth substance. Is very cleanly and agreeable to use, and may be relied upon as a thoroughly trustworthy filling material. Requires a very small proportion of mercury.

A smooth, extremely plastic variety of the above, designed for use in positions where thorough plugging is a matter of difficulty. It is largely used in connection with the ARTIFICIAL DENTINE for the apparently most hopeless cases.

EXTRA PLASTIC AMALGAM.

ARTIFICIAL DENTINE.

Is the ONLY uniformly successful Nerve Capping, containing in itself all requirements for treatment of exposed nerves, and as a hard base for building permanent plugs upon.

It is perfectly FREE FROM IRRITANT ACTION, and may be used with impunity in every case where no other material can be applied without risk.

The most permanent and insoluble of any of the oxy-chlorides known. The difference in mechanical hardness between this and other oxy-chlorides has no effect whatever so far as permanence in the mouth is concerned. The permanence in the mouth is, as a rule, in the inverse ratio of the mechanical hardness, and depends solely on the insolubility in acids and alkalis.

WHITE ENAMEL.

FLETCHER'S FILLING MATERIALS

can be obtained at all Dental Depots at the same rates as they are sold in England, viz.:

Platinum Amalgam,	. . . . .	\$4.80 per ounce.
Extra Plastic Amalgam,	. . . . .	5.00 " "

IN HALF OUNCE PACKETS.

White Enamel,	. . . . .	\$1.50 per packet.
Artificial Dentine,	. . . . .	1.00 " "
Copal Ether Varnish, per bottle,	. . . . .	.25 cents.
Carbolized Resin, a "toothache" specific, per bottle,	. . . . .	.25 cents.

ANY OF THE ABOVE FILLING MATERIALS SENT POST-PAID ON RECEIPT OF PRICE.
Address in United States:

JAMES V. LEWIS,
GENERAL WHOLESALE AGENT FOR

FLETCHER'S FILLING MATERIALS for the UNITED STATES,
No. 15 COURT STREET, BUFFALO, N. Y.

VON BONHORST'S ANÆSTHETIC.

We have recently purchased of Dr. C. G. Von Bonhorst, now of Pomona, Cal., at considerable expense, his famous Anæsthetic and Applicator, with complete apparatus for manufacturing and putting up the same. This anæsthetic is so well known in this vicinity that we only consider it necessary to state that it is again in the market. As to its genuineness we refer to Dr. Von Bonhorst, who has sent all orders which have been sent him since he went to California to us. We call attention to a few of the prominent dentists who have used and can recommend the Anæsthetic.

Having used

Dr. VON BONHORST'S

ANÆSTHETIC

from the time it was first obtainable to the present, I take pleasure in saying I consider it of great utility,

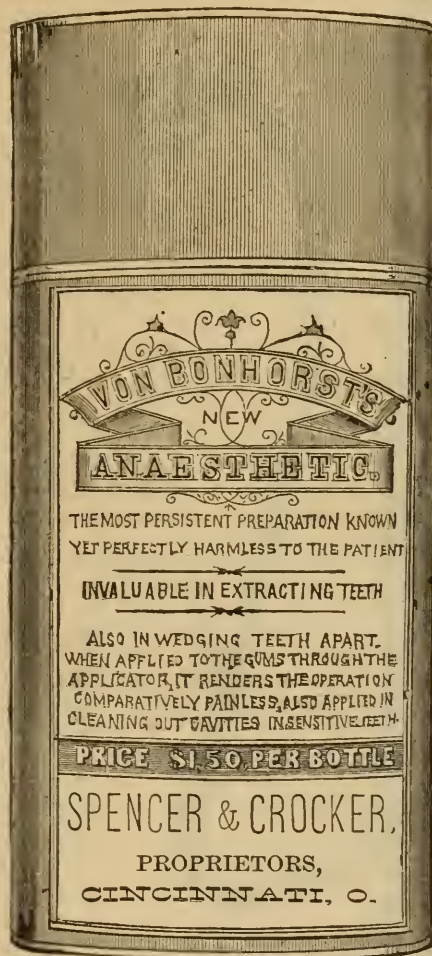
Lessening the Pain

incident to some of our most severe operations.

CINCINNATI, February
7th, 1884.

A. BERRY, D. D. S.

President of Mad River Valley
and Ohio State Dental Societies



have treated a score of

Exposed Nerves

both those that follow excavating, as well as those exposed from decay, and

Not One Failure.

All treated by the aid of your preparations.

D. R. JENNINGS, D. D. S.,
Ex-President Ohio State Dental
Society.

My experience with
your goods is similar to
that of Dr. Jennings.

PROF. J. TAFT.

C. BRADLEY,
Dayton, O.

V. F. ELLIOTT,
Minneapolis, Kan.

I. WILLIAMS,
Ex-President Ohio State Dental
Society.

The above illustration shows style of package and label—about two-thirds size.

Price of Anæsthetic, per Bottle, - - - - - \$1.50.

Price of Applicator Reduced to - - - - - 1.50.

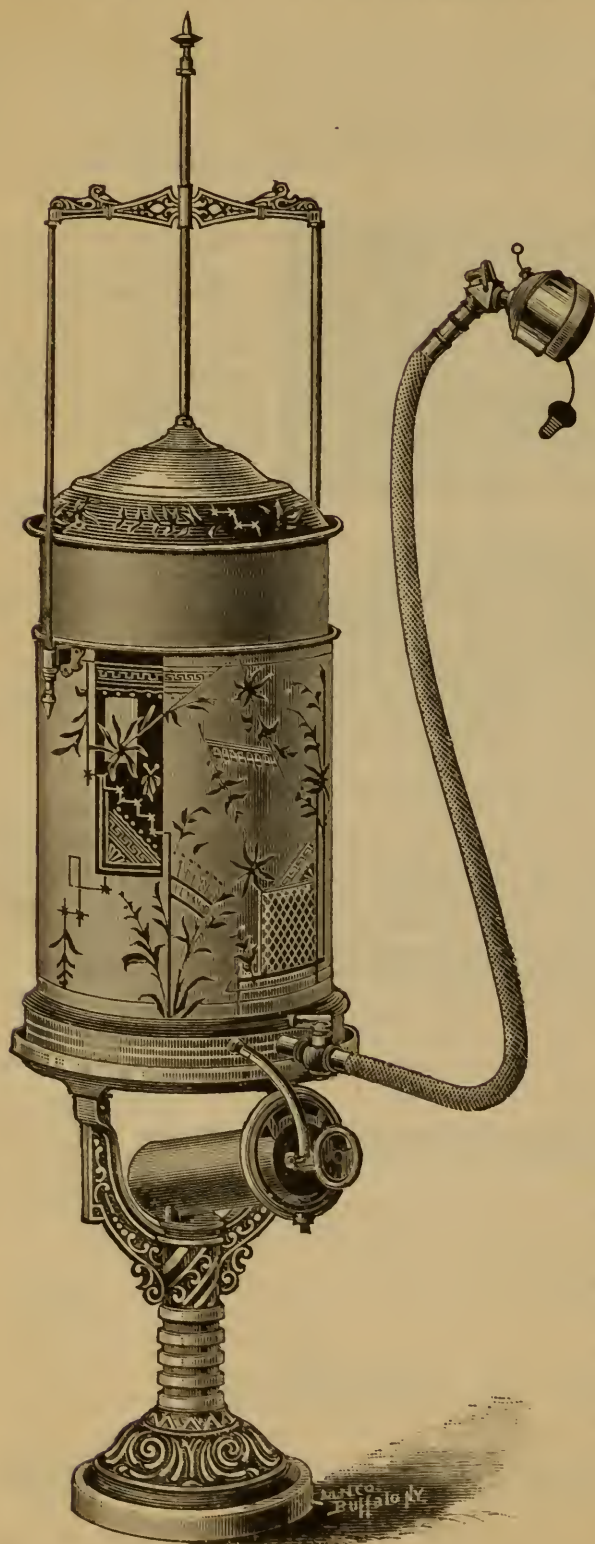
SPENCER & CROCKER,

OHIO DENTAL AND SURGICAL DEPOT,

TRADE SUPPLIED.

CINCINNATI, O.

THE LEWIS NITROUS OXIDE GASOMETER



This Gasometer is believed to be the

Best and Most Convenient

for the price yet produced.

Made of best Galvanized Iron, highly and artistically ornamented. All bright parts nickel-plated.

IT IS FITTED FOR EITHER A 100 OR 500 GALLON CYLINDER.

Contains an effective Water Seal

PRICES.

No. 1, Lewis Gasometer, \$30.00
No. 2, Lewis Gasometer, \$25.00
Boxing included.

The No. 1 and No. 2 are identical in construction, the difference being in ornamentation.

The above prices are for the Gasometer and Stand alone. Full outfits furnished, including inhalers of any of the usual styles. Circulars will be furnished on application, giving full details of different outfits, and their prices.

Prices given for any selection of apparatus desired. Gas in cylinders furnished in any quantity.

FOR SALE BY ALL DEALERS
IN DENTAL GOODS.

Manufactured only by Buffalo Dental M'f'g Co., Buffalo, N. Y.

THE LEWIS NITROUS OXIDE GASOMETER.

In the administration of Nitrous Oxide for the production of anæsthesia, experience has shown that there are objections to the use of the gas bag which forms a part of the usual outfit for the purpose. A small gasometer holding enough gas for administration to one patient has been found preferable on many accounts.

THE BUFFALO DENTAL MANUFACTURING CO. have ready for the market a

NITROUS OXIDE GASOMETER,

the result of extensive experience in the administration of Nitrous Oxide, combining all necessary requirements, with a beauty of design which will render it an ornament to any operating room.

The body of the Gasometer is made of **GALVANIZED IRON**, and is placed upon an ornamental cast-iron stand, the whole being neatly japanned and ornamented. The stand is furnished with a support which will securely hold either a 100 or 500 gallon cylinder, enabling the operator to use either size, as may be desired.

The Gasometer is furnished with a water-seal, which may be adjusted to either wholly or partially sustain the weight of the bell, dispensing with balance weights, and preventing the escape of gas if the tap on the inhaling tube should accidentally be left open. This arrangement obviates the necessity of turning off the gas when the mouthpiece is withdrawn preparatory to operating; the flow being checked automatically by the water-seal, the dentist is enabled to give his whole attention to the patient and proceed at once. It is advisable, however, to close the inhaler valve, immediately after the operation, to prevent the tubing being filled with air; also to shut the stop-cock on the Gasometer to provide against any leakage in the tubing.

The economy of this apparatus is unquestioned, as gas left over after administration is saved, and in good condition for future use.

The fittings are all Nickel-Plated. Capacity of Gasometer about seven gallons.

The No. 1 and No. 2 are identical in construction, the differences being in ornamentation.

No. 1 is double japanned, artistically ornamented and finished in gilt, as shown in the cut.

No. 2 is neatly japanned and striped.

Orders filled in rotation as received.

PRICES.

No. 1 Lewis Gasometer,	\$30.00
No. 2 Lewis Gasometer,	25.00

The above prices are for Gasometer and Stand alone, boxing included.

PARTS OF GAS OUTFIT.

Cylinder with 100 Gallons Gas,	15.00
Cylinder with 500 Gallons Gas,	42.00
Refilling 100 Gallon Cylinders,	5.00
Refilling 500 Gallon Cylinders, @ 4c. gallon say,	20.00
Metallic Connection to Connect Tubing with Gasometer, . . . . .	.25
Inhaling Tubing, Worsted Covered, per foot, . . . . .	.50
Wheel Key, . . . . .	.25
Yoke, Nickel-Plated,	1.50

SIX WORLD'S FAIR MEDALS

—OF THE—

HIGHEST ORDER OF MERIT AWARDED FOR SUPERIORITY

—AT—

VIENNA, CHILI,
PHILADELPHIA,
PARIS, SYDNEY,
AND
MELBOURNE,

—TO—

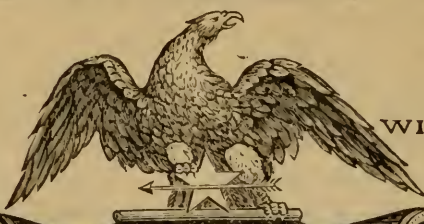
H. D. JUSTI,

IN COMPETITION

WITH THE BEST MAKERS

—OF—

PORCELAIN TEETH.



H. D. JUSTI.

BRANCH, 66 E. MADISON ST.
CHICAGO, ILL.

516 ARCH STREET,
PHILADELPHIA, PA.

PORCELAIN TEETH.

Beginning at Vienna, in 1873, where I made my first display, I have received successively at the Six World's Fairs the **Highest Award for ARTIFICIAL TEETH**; this being the most important branch of my business and all that I exhibited.

The greatest proof ever extended for Superiority to any manufacturer of **PORCELAIN TEETH**, for their Strength, Adaptation and Natural Life-like Appearance, was received by me through the Report of the Judges; Centennial International Exhibition, 1876.

EXTRACT

FROM THE GENERAL REPORT OF THE JUDGES ON AWARDS OF GROUP XXIV.

"H. D. Justi **EXHIBITED NOTHING BUT TEETH**, but his display was beautiful in the extreme. In color, translucency and texture, they were all that could be desired; they were a faithful reproduction of the physiological characteristics of the natural organs, both to the individual teeth and relatively to the entire set. Their conformation with reference to close and easy adaptation to the maxillary arch showed careful study of the needs of both patient and operator. Their various and numerous deviations from uniformity of arch and outline, simulating the irregularities of nature, was so perfect that, when in the mouth, no suspicion of their artificial nature would be entertained. The disposition of tooth-material was so skillfully managed as to secure the greatest amount of strength with the least bulk; and the insertion of platinum pins was so arranged as to render their displacement an almost impossible accident."

H. D. JUSTI,

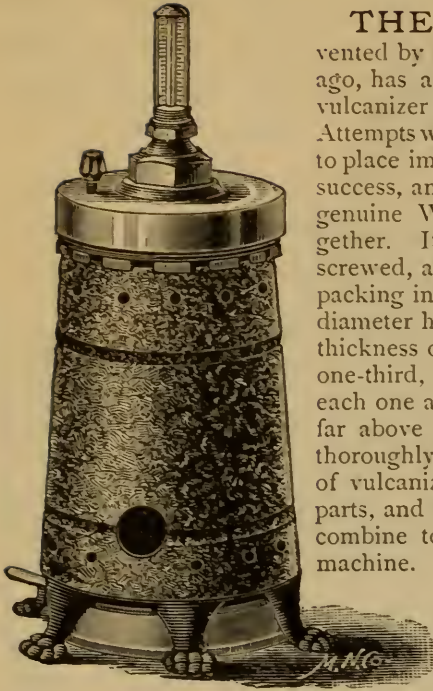
BRANCH:

No. 66 E. Madison Street, Chicago.

PRINCIPAL DEPOT:

No. 516 Arch Street, Philadelphia.

Dental·Vulcanizers.



THE WHITNEY VULCANIZER, invented by the late Dr. B. T. Whitney more than twenty-five years ago, has always had the name of being the most simple form of vulcanizer in existence, and it has always met with a ready sale. Attempts which have been made from time to time by different parties to place imitations of it upon the market, have met with very limited success, and it is safe to say that there are to-day more of the genuine Whitney Vulcanizers in use than of all other kinds together. It consists of a copper pot on to which a brass head is screwed, a steam-tight joint being made by means of a rubber-packing in the head, which bears upon the edge of the pot. Its diameter has recently been enlarged from $3\frac{7}{8}$ to 4 inches, and the thickness of copper used in making it has been increased about one-third, thus insuring ample strength. Careful tests are given to each one as it is made, and each is subjected to a pressure of steam far above that which it should receive in use, and is afterwards thoroughly inspected. Our long experience in the manufacture of vulcanizers, the proper proportion of material in its different parts, and the accurate and careful workmanship bestowed upon it, combine to make it a strong, safe, durable and easily managed machine.

HAYES' PATENT MERCURY BATH is applied to this vulcanizer, by which the bulb of the thermometer is protected from the destructive action of the steam upon it, and one of the most frequent causes of failure of the thermometer entirely obviated. It is also

fitted with the B. D. M. Co.'s safety apparatus and safety disc, which will give way and allow the escape of the steam, if the temperature of the vulcanizer should be allowed, by forgetfulness or oversight, to rise to a dangerous extent. The pressure being thus relieved, a disastrous explosion becomes impossible.

The Whitney Vulcanizer is closed by means of two wrenches, the "round" and "straight" wrenches, (Nos. 3 and 8). These form the most convenient means for the purpose, for the traveling dentist. For those having a regularly appointed laboratory, the bed-plate and wrench, (Figs. 9 and 10) are recommended. The bed-plate is fixed to the bench, in which a hole is cut for the reception of the vulcanizer pot. These are furnished with the vulcanizer instead of the round and straight wrench, Nos. 3 and 8, without any advance in price. If a hole in the bench is not practicable, the Raised Bed-plate (No. 16) will be furnished at an advance in price of 75 cents.

The heat is supplied by either gas, alcohol or kerosene. Apparatus for burning either is furnished as required.

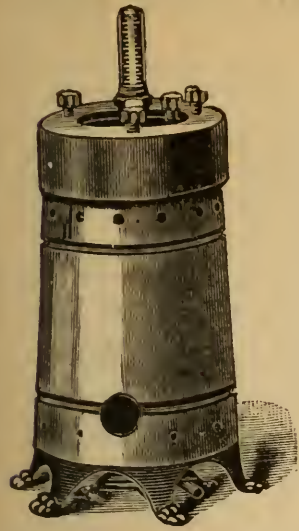
We have succeeded in effecting arrangements with the manufacturers by which we are enabled to furnish a **SPECIAL PATTERN OF KEROSENE STOVE** with our vulcanizers, without the advance in price heretofore made in furnishing the Union Stove. This stove has a four inch wick and will be found an efficient heater, much preferable to those heretofore used. This stove will always be furnished with this vulcanizer, unless other heating apparatus is specified. The Union Stove, if ordered, will be \$1.25 extra, as before.

PRICES.

No. 1, Vulcanizer, for one flask, Gas, Alcohol or Kerosene,	\$12.00
No. 2, Vulcanizer, for two flasks, Gas, Alcohol or Kerosene,	14.00
No. 3, Vulcanizer, for three flasks, Gas, Alcohol or Kerosene,	16.00
No. 1, Vulcanizer with Union Kerosene Stove,	13.25
No. 2, Vulcanizer with Union Kerosene Stove,	15.25
No. 3, Vulcanizer with Union Kerosene Stove,	17.25

THE HAYES VULCANIZER.—THE HAYES COPPER BOILER

consists of a copper pot, a cover containing the packing joint, and a collar, which screws upon a threaded ring which encircles the pot, and bears upon the cover to tighten the joint by means of three set-screws, which are plainly shown in the engraving. This fastening has proved to be the most substantial of any, and can be recommended as *absolutely steam-tight*.



The thermometer bulb is immersed in HAYES' PATENT MERCURY BATH, by which it is perfectly protected from the corrosive action of the steam.

Two sizes of the Hayes Copper Boiler are made, which are respectively, 4 inches and 4½ inches in diameter. The 4-inch size, which is generally employed by dentists, can be furnished to take one, two, or three flasks, as desired. The 4½-inch size is kept in stock either for two or three flasks, and can be made of extra length for special purposes.

THE IRON CLAD BOILER is made precisely like the Copper Boiler above described, excepting that the copper pot is covered by a shell of malleable iron strong enough to withstand many times the pressure of steam used in vulcanizing. It may, therefore, be safely used, notwithstanding the weakening of the copper by corrosion. It is only made of 4 inches diameter, for

Pat. Mch. 5, '61, July 8, '62, Ap. 3, '66.

one, two, or three flasks. We have succeeded in effecting arrangements with the manufacturers by which we are enabled to furnish a SPECIAL PATTERN of KEROSENE STOVE with our vulcanizers, without the advance in price heretofore made in furnishing the Union Stove. This stove has a four inch wick and will be found an efficient heater, much preferable to those heretofore used. This stove will always be furnished with this vulcanizer, unless other heating apparatus is specified. The Union Stove, if ordered, will be extra as before, viz.: No. 1, \$1.25; No. 2, with two wicks, \$1.50.

PRICES.

No. 1, Copper, Gas, Alcohol or Kerosene,	\$12.00
No. 2, Copper, Gas, Alcohol or Kerosene,	14.00
No. 3, Copper, Gas, Alcohol or Kerosene,	16.00
No. 2, Large Vulcanizer, 4½-inch diameter,	20.00
No. 3, Large Vulcanizer, 4½-inch diameter,	22.00
With Union Kerosene Stove, extra,	1.50
No. 1, Iron Clad, Gas, Alcohol or Kerosene,	15.00
No. 2, Iron Clad, Gas, Alcohol or Kerosene,	17.00
No. 3, Iron Clad, Gas, Alcohol or Kerosene,	19.00

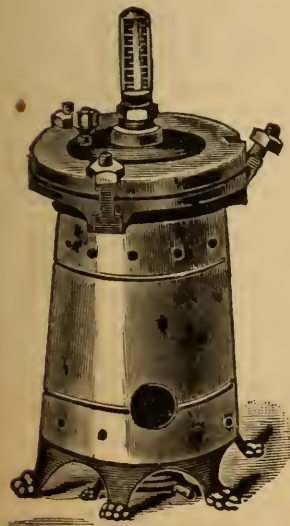
THE PEER VULCANIZER.—The cover is

secured by three bolts, pivoted in a ring surrounding and securely brazed to the edge of the pot. As will be seen by reference to the engraving, they can be thrown out of the way when it is desired to remove the cover, by merely slackening the nuts.

Only one size of this vulcanizer is kept in stock, viz.: 3¾ inches diameter, for two flasks.

Hayes' Patent Mercury Bath is adapted to this vulcanizer, by which the liability of the thermometer to accident is much decreased. It is also supplied with the B. D. M. Co.'s safety disc apparatus.

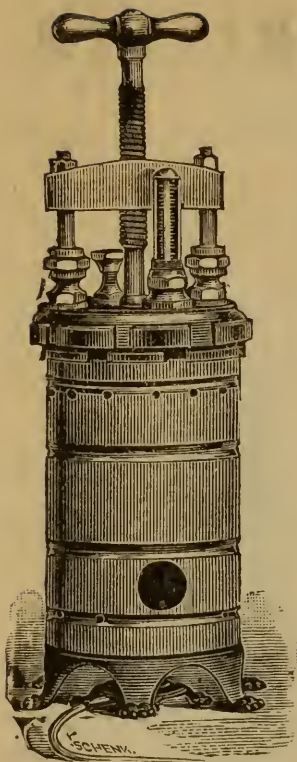
The heat is applied by either gas, alcohol or kerosene. The B. D. M. Co.'s special pattern of kerosene stove is adapted to this vulcanizer, and will be furnished with it unless other heating apparatus is specified in the order.



Patented April 3, 1866.

PRICES.

No. 2, Peer Vulcanizer, Gas, Alcohol or Kerosene, . .	\$14.00
Union Kerosene Stove, extra,	1.25



Patented May 25, 1875.

THE EDSON VULCANIZING AND CELLULOID APPARATUS COMBINED.

—Desirous of keeping the profession supplied with all improvements in vulcanizing apparatus, we have made arrangements to supply the Improved Edson Vulcanizing and Celluloid Apparatus as shown in the annexed cut.

The flasks are closed inside the boiler after steam has been generated therein, by means of a screw and cross-bar, which operate a clamping apparatus. This apparatus is provided with a mercury bath thermometer.

The clamping apparatus has lately been remodeled and strengthened, and the lower end of the screw is now attached to the boiler head by a cap-nut, so that the clamping apparatus can be either closed or opened by turning the screw.

Our special kerosene heater is furnished with the Edson Vulcanizer unless either gas or alcohol is specified.

PRICES.

Edson Vulcanizing and Celluloid Apparatus complete,	
for Gas, Alcohol or Kerosene,	\$25.00
With Union Kerosene Stove, extra,	1.50

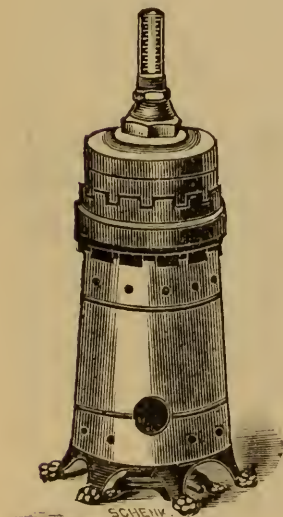
LARGE SCREW-TOP VULCANIZER.

—This is made from the Edson patterns, without the clamping arrangement. It is $4\frac{3}{8}$ inches diameter, large enough to take the B. D. M. Co.'s "Large" flask if desired for dental purposes, and can be made to order, of any depth required for special use, such as rubber stamp work.

This and the Edson Vulcanizer are closed by means of the bed-plate and wrench, Nos. 1 and 2.

PRICES.

No. 2, Large Screw-Top Vulcanizer,	\$16.00
No. 3, Large Screw-Top Vulcanizer,	18.00



Patented May 19, 1868.

THE WOODARD SELF-PACKING VULCANIZER.

—The flasks are placed in this vulcanizer without being closed, and are gradually brought together by the pressure of the steam, as the vulcanizer is heated. This is accomplished by means of a piston which receives the pressure of the steam, and operates in a cylinder formed in the vulcanizer top. The flasks are placed in a stirrup which is connected with the piston. The flasks are closed gradually, as the steam pressure rises, and at a higher temperature than when they are closed in the usual way. The rubber is thus rendered softer and more yielding, and one fruitful source of the breakage of blocks is thus obviated.

Only one size of the vulcanizer is made, viz.: $3\frac{7}{8}$ inches diameter, for two flasks. The cover of this vulcanizer screws upon the pot in precisely the same manner as the "Whitney."

Hayes' Patent Mercury Bath is adapted to this vulcanizer, by which the liability of the thermometer to accident is very much decreased. The heat is applied by either gas, alcohol or kerosene, a special kerosene stove being furnished unless other apparatus is specified. The Union Stove, if ordered, is \$1.25 extra.

PRICES.

Woodard Vulcanizer, for two flasks, complete, Gas Alcohol or Kerosene,	\$24.00
Union Kerosene Stove, extra,	1.25

KING'S OCCIDENTAL AMALGAM.

PRICE REDUCED TO \$3.00 PER OZ.

This Amalgam has been before the profession in Ohio and Western Pennsylvania for some years, and all who have used or tested it agree that it has merits over any other Amalgam in the market.

The process of manufacture differs from that of other Amalgams, and

BY A NEW INVENTION

Dr. King is enabled to obtain better results, both in regard to COLOR, SHRINKAGE and EXPANSION, than is obtained in any other alloy in the market.

Test for color consists of sixty grains of Sulphuret of Potassa, dissolved in one ounce of water. Amalgam plugs to be left in this solution twenty-four hours or more. The Occidental will remain bright after this test, and we know of no other Amalgam, at even double the price, but that will discolor. All who would use the best should buy

KING'S OCCIDENTAL AMALGAM.

TESTIMONIALS.

I believe the Occidental Amalgam has *no equal* in the market to-day.

PITTSBURGH, September 22, 1881.

GALE FRENCH, D. D. S.

I think the Occidental Amalgam superior to any I have ever used.

PITTSBURGH, September 22, 1881.

J. G. TEMPLETON, D. D. S.

ASK YOUR DENTAL DEPOT FOR IT, OR SEND TO

RANSOM & RANDOLPH, Wholesale Agents,

83 JEFFERSON STREET, TOLEDO, OHIO.

FOR SALE BY BUFFALO DENTAL MANUFACTURING CO.

Give us your Subscription now for 1885.

OHIO STATE JOURNAL OF DENTAL SCIENCE

A Monthly Journal of 48 to 56 pages, for Two Dollars per Year.

Editor: GEO. WATT, M. D., D. D. S., Xenia, Ohio.

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FLASK BOLTS.



Whitney Old Style.



Whitney New Style.



Whitney Slot.



Hayes Clamp.



"Star."



Set screw for

Hayes Vulcanizer.

PRICES.

Whitney Old Style,	per set of 3, . .	18 cents.
Whitney New Style,	" "	25 "
Whitney Slot, (or Brown's Vulcanite,)	" "	25 "
Star Bolt, for S. S. W. D. M. Co.'s Star Flask,	" "	30 "
Hayes Clamp bolts,	" "	25 "
Brown's Celluloid,	" "	50 "
Hayes Set-Screw, for Screw-collars,	" "	25 "

REPAIRS ON VULCANIZERS.

We frequently receive parts of Vulcanizers for repairs, and sometimes are obliged to send for the remaining parts before we can be certain that we have put the apparatus in satisfactory condition. It is best in all cases to return all the parts of the Vulcanizer, so that it can be tested and made steam-tight before it is sent from our hands. If a new screw-collar is wanted the pot should be sent, that the thread may be well fitted; and the cap, that the Vulcanizer may be tested. If a pot leaks and requires brazing, the only positive knowledge of its being steam-tight after the repairs are made is to be gained by screwing on the cap and testing it by steam.

If dentists and dealers will bear these facts in mind, they will save themselves much annoyance, and at times some extra expense.

BUFFALO SHEET WAX.—A superior quality of sheet wax and gutta percha and wax, for base-plates; also gutta percha and wax, and pure wax in cakes for impressions. The trade supplied at satisfactory rates.

PRICES.

Sheet Wax, for base-plates, per half-pound box,	50 cents.
Sheet Gutta Percha and Wax, for base-plates, per half-pound box,	50 "
Wax in cakes, for impressions, per half-pound box,	50 "
Gutta Percha and Wax in cakes, for impressions, per half-pound box,	50 "

BUFFALO DENTAL MANUFACTURING CO.

R. S. WILLIAMS,

MANUFACTURER OF

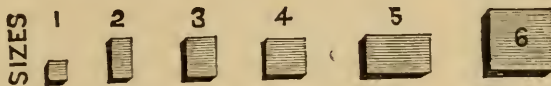
Standard Gold Foil,

Standard Gold Cylinders,



Standard Gold Pellets,

Standard Gold Blocks,



Over one hundred and fifty varieties kept in stock, each differing in quality, size or style.

Standard Electric Gold,

Gold and Platinum Folds.

AMALGAM ALLOY No. 1,

STANDARD GUTTA PERCHA BLOCKS, for Fillings,

STANDARD DENTAL RUBBER,

ARE THE BEST.

Send for Price List and Descriptive Circular.

621 & 623 Sixth Ave., NEW-YORK, N. Y.

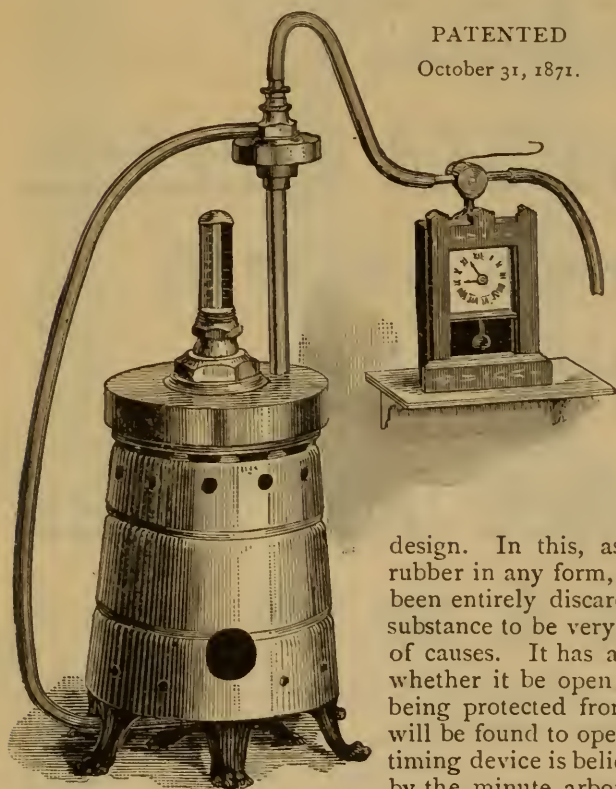
(Between 36th and 37th Sts.)

FOR SALE BY BUFFALO DENTAL MANUFACTURING CO.

COOLIDGE'S GAS REGULATOR

FOR DENTAL VULCANIZERS.

PATENTED
October 31, 1871.



This device was invented by Dr. J. B. Coolidge, of Boston, about the year 1871. A number of them were made and sold at that time, and are to-day in good condition. It is operated by the pressure of steam upon a thin metal disc, which, yielding to the pressure, closes a valve which controls the flow of gas to the burner under the vulcanizer. Extensive experiments have been made to procure a metal for the disc which would not lose its elasticity by use, nor give way from the effects of corrosion, and it is offered to the dental profession with the assurance that it will be found to be accurate, serviceable, and durable.

The time regulator is of new design. In this, as in the gas regulator, the use of rubber in any form, excepting as connecting tubing, has been entirely discarded, as experience has proved that substance to be very prone to deterioration from a variety of causes. It has a metallic valve, which is gas-tight, whether it be open or closed, and the operating screw being protected from the action of the gas, the valve will be found to operate with ease and certainty. The timing device is believed to be new, and as it is operated by the minute arbor of the clock, instead of the hour

arbor, as is usually the case, it is capable of very delicate adjustment as to time, its variation being limited by seconds instead of minutes.

The gas regulator is a better means of maintaining a regular heat than a thermometer, for the reason that as it acts by the steam pressure its movement is positive, and it can be depended upon to act at the desired point after it is once properly set. A certain steam pressure is the result of the application of a certain amount of heat, and it is immediately indicated by the diaphragm of the regulator. Before the thermometer can act, it has to receive a certain amount of heat, and the rapidity with which this will be received depends upon the conductivity of the parts between the flame and the thermometer. The amount of air above the water in the vulcanizer, the variation of thickness of metal at the bottom of the mercury cup, and the presence or absence of mercury in the mercury bath, are all conditions which vary and retard the action of the thermometer.

The following experiment will illustrate the comparative operation of the two devices: Let the vulcanizer be closed with, say, two inches of water in it, and heat applied. The regulator will turn down the gas, when the thermometer registers somewhere in the neighborhood of 300°. If the screw cap of the safety disc is now loosened, and steam allowed to escape for one minute, and the screw cap then tightened, the thermometer will in a few moments be found to register 320°.

The reason of this is that as air conducts heat very imperfectly, its mixture with the steam interferes with its conductivity and with the indication of the temperature by the thermometer; but after the air has been allowed to escape, there is an atmosphere of steam above the water in the vulcanizer, which must be of the temperature due to its pressure, throughout its whole extent.

PRICE:

Gas and Time Regulator, complete, \$10.00

Manufactured only by **BUFFALO DENTAL MANUFACTURING CO.**

Dr. J. Foster Flagg's Specialties.

These "Specialties" are offered with the assurance that they are such as are progressively taught and used by Dr. Flagg, and that every lot of each material is *tested* and *approved* by him before being sold.

HAND-MADE GUTTA PERCHA STOPPING ($\frac{1}{4}$ oz. pkge), per oz.,	\$5.00
"CONTOUR" AMALGAM ALLOY, per oz.,	4.00
"SUBMARINE" AMALGAM ALLOY, per oz.,	3.00
"PLASTIC ENAMEL" (Nitro-phosphate of Zinc), $\frac{1}{2}$ oz.,	2.00
OXY-CHLORIDE OF ZINC, per package,	1.00
"AMBERLINE" (Tooth-soap), per box,	.50
PEPPER BAGS, package of 20,	1.00
EAU BOCO (Tooth-wash), per bottle,	.50
GLASS MORTARS, properly ground,	.75
GUTTA PERCHA AND INSTRUMENT WARMERS (Dry-Heat),	4.00

For Sale at Dental Depots, and by

DR. FLAGG, 106 North Eleventh Street, Philadelphia, Pa.

LAWRENCE'S AMALGAM.

"THE OLD RELIABLE."

This Amalgam has received the endorsement of the Profession at large for over forty years, which would seem to render any remarks as to its excellence superfluous. Retail price, Three Dollars per ounce.

Purchase only of reliable dealers, their agents, or of the inventor and only manufacturer,

AMBROSE LAWRENCE, 476 Columbus Ave., Boston, Mass.

"NE PLUS ULTRA."

WE ASK YOUR ATTENTION TO OUR

SOFT GOLD FOIL PURE

We guarantee it PURE, UNIFORM, TOUGH, DUCTILE, MALLEABLE.

Easily made COHESIVE, always RELIABLE, and FULL WEIGHT.

Receives our personal attention in refining and preparation throughout.

PRICES.

\$4.00 per $\frac{1}{8}$ ounce.	\$29.00 per 1 ounce.
15.00 " $\frac{1}{2}$ "	28.00 per oz. for 5 ounces.

If not kept by the dealer to whom you apply, send direct to

J. M. NEY & CO.,

REFINERS AND ASSAYERS, HARTFORD, CONN.

Also Gold, silver and aluminum plate, tin foil, etc., Gold and silver scraps and mutilated coin received in payment.

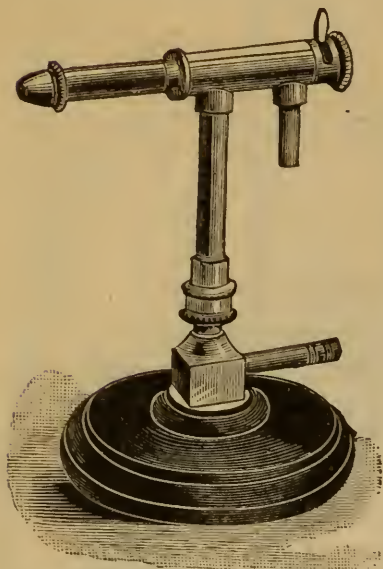
ESTABLISHED 1846.

For sale by BUFFALO DENTAL MANUFACTURING CO. and Dental Depots and their Agents.

[1984-19.]

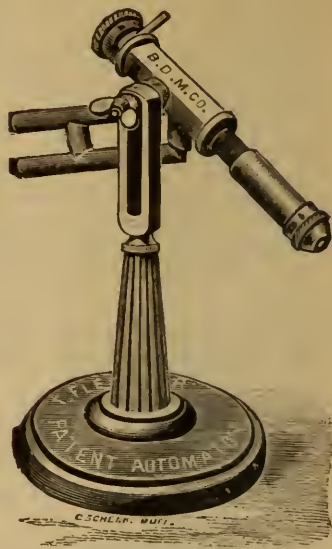
SOLDERING APPARATUS

FOR GOLD CROWN WORK.



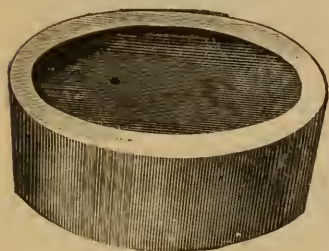
Automaton Blow-Pipe—No. 6 A.
Price, \$4.00.

The increasing use of the Richmond and other patterns of artificial crowns has created a demand for better appliances for soldering gold than have heretofore been in use in dental laboratories, and the articles here illustrated are presented as forming a complete outfit for the purpose. Two forms of the Automaton Blow-Pipe are shown. The No. 6 A is mounted on a ball-joint, situated imme-



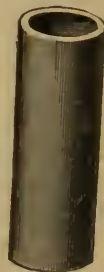
Automaton Blow-Pipe—No. 6 D.
Price, \$4.50.

diately above the base, and is capable of motion in any direction. The No. 6 D is fastened to an upright by means of a thumb-nut. It can be removed and used in the hand when it is desirable to do so. The size of the flame is adjustable by means of the small lever shown at the butt end of the Blow-Pipe, which regulates the supply of both gas and air by the same motion, giving the most complete control of the heat.



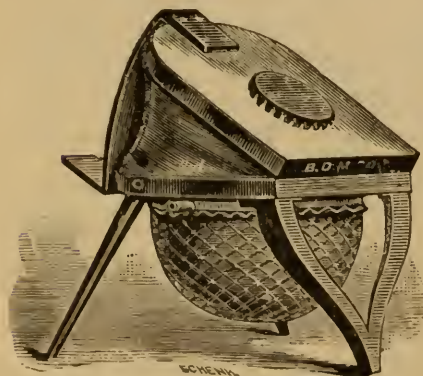
Carbon Block. Price, 25c.

The cupped ends of the Carbon Cylinders are admirable supports for the crowns while soldering. The Carbon Blocks are four inches in diameter, and the Cylinders $1\frac{1}{8} \times 3$ inches. They are perfect non-conductors, and much more cleanly to use than charcoal.



Price, 15c.

Carbon Cylinder.



Foot Bellows—No. 9. New Style.
Price, \$5.00.

The No. 9 New Style Foot-Bellows is well adapted for furnishing the blast required for soldering. The elasticity of the rubber disk keeps a uniform pressure of air. The use of the Bellows will be found much preferable to furnishing the blast from the lungs.

For further description of these and other forms of Gas Blow-Pipes and Soldering Apparatus send for our Price List of Fletcher's Laboratory Apparatus, No. 14. Just issued.

Manufactured only by the

BUFFALO DENTAL MANUFACTURING CO.

SMITH'S FIFTEEN-MINUTE DENTAL RUBBER

Has become widely known and a necessity to many Dentists. It makes a strong durable plate, and is invaluable for repairing purposes.

PRICE \$3.00 per lb., 20 cts. per Sheet.

I have a large and well selected assortment of H. D. JUSTI'S and W. D. M. CO.'S ARTIFICIAL TEETH, also a full assortment of BONWILL CROWNS, GOLDS, AMALGAMS, RUBBERS, FORCEPS and miscellaneous DENTAL GOODS.

Orders filled with *care* and *promptness*.

Address,

FRED. W. SMITH,

DENTAL DEPOT,

BINGHAMTON, N. Y.

P. O. BOX 262.
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Send for
NEW CATALOGUE
OF
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BUFFALO
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DO YOU KNOW

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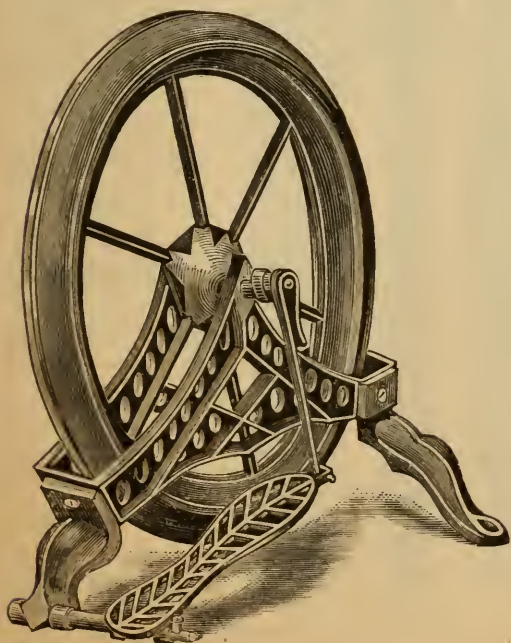
Climax Plug Tobacco

WITH RED TIN TAG,

Rose Leaf Fine Cut Chewing,
Navy Clippings, and Black,
Brown and Yellow Snuffs

Are the *BEST* and *CHEAPEST*,
QUALITY CONSIDERED?

oct-84-1y



Diamond Fly Wheel.

THIS Fly Wheel is 18 inches in diameter, with wrought iron spokes, in an iron frame, complete in itself, can be set anywhere, and runs very steady.

It has sufficient power and speed for any Dentists' Lathe Head, and is well adapted to the B. D. M. Co.'s Lathe Head.

The feet are easily detached, and all can be packed in a smaller box than any other Fly Wheel of its dimensions in the market.

PRICE, Boxed, - - \$8.00.

FOR SALE BY THE

Buffalo Dental Manufacturing Co.

BENCH KNIVES.

These knives are of good material, rose-wood handles, tempered steel blades, and excellent in shape for trimming plaster casts, and for dental laboratory purposes generally.

PRICES.

- | | |
|---------------------------|---------|
| No. 1. Bench Knife, . . . | 25 cts. |
| No. 2. Bench Knife, . . . | 25 cts. |
| No. 3. Bench Knife, . . . | 25 cts. |

Bullock's Patent Pin Vise.

No. 1 can be adjusted to hold Wire from No. 31 to the finest, by turning nurl'd nut. No. 2 holds Wire from No. 46 to finest. Work is always centered and balanced. No thumb-nut in the way. Will not get out of order or break, as it is made of steel and hardened.

PRICE, No. 1, Pin Vise, Nickel-Plated, 90 cents.

No. 2, 75 cents.

TWEEZERS

FOR

SOLDERING.

Slim Fine Point,
25 cents.

FOR SALE BY

BUFFALO

Dental M'fg Co.



No. 1.

No. 2.

No. 3. PIN VISE. TWEEZERS.

THE DENTAL ADVERTISER.

VOL. XVI.—BUFFALO, N. Y., APRIL, 1885.—No. 2.

THE FACILITATION OF CONTOUR WORK.

BY E. A. BOGUE, M. D., D. D. S.

Read before the Odontological Society of Great Britain.

I believe it is generally conceded that the normal form and position of the human teeth are such as are best calculated to resist the destructive tendencies which surround them.

When, however, decay has attacked the teeth upon their approximal sides, the difficulties of restoration to the normal form have been so great as to discourage many from ever undertaking it.

The consequence has been that for obtaining access to very small cavities of decay, great slots or V-shaped spaces have often been filed between two teeth, which slots have afterward been receptacles for the debris of food and the nidus of decay.

A more careful class of operators have used wedges of cotton or tapes or wood until space was procured, and then placed a wooden wedge at the margin of the gum between the two teeth to be operated upon.

This process is both long and painful, and is not always certain.

Some ten or twelve years ago Dr. Jarvis of New-York devised an instrument to separate two adjoining teeth by means of a screw, so that an examination could be made or a wedge inserted.

Shortly afterward Dr. Perry made an improvement upon the form of the instrument, but it was still not applicable to the majority of cases.

With the consent of both these gentlemen I have undertaken to improve the device still further, and this evening take pleasure in presenting for your examination an instrument that I have used for the last four

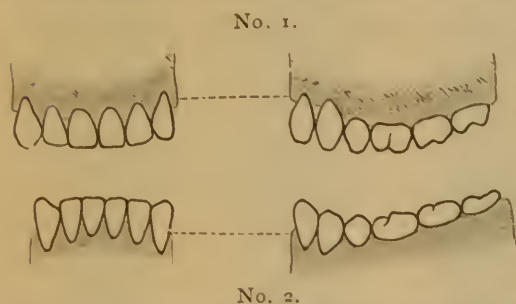
years, with great advantage to myself and an enormous saving of pain and tooth substance to my patients.

I have recently made some further modifications in the form and size of the instrument, that are shown in the accompanying engravings.

It is a question of applying the force gradually, to separate the teeth without touching the gums, in order to obtain little by little the necessary space, and once obtained, to have room enough to work without being hindered by the instrument itself.

If we examine the dental arches of a well-developed subject, looking at the maxilla horizontally, we find that the arch of the lower jaw presents three different curves.

The first is represented by a line commencing at the upper end of each



canine and describing a curve that is convex towards the upper jaw; the two other curves are indicated by the molars, which present a curve with the concavity looking downwards.

In the upper jaw the same curves exist, but reversed; and we have besides a curve from one canine to the other which is convex on the labial side, while the molars have, on the contrary, a concave curve.

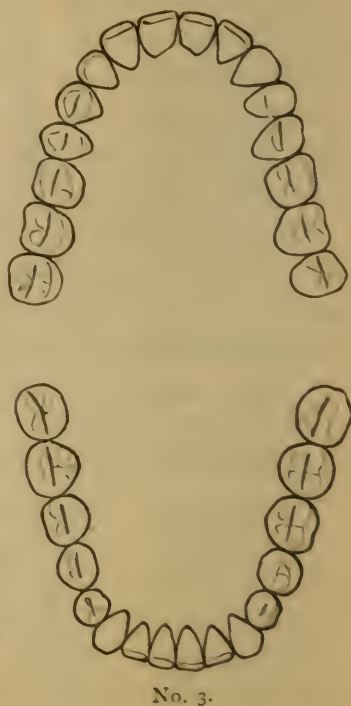
It must be remembered also that the length of the teeth varies considerably in different individuals.

For these various reasons it is easy to understand the difficulties in the way of a perfect adaptation of the instrument to all mouths; hence the advisability of having several to suit different cases.

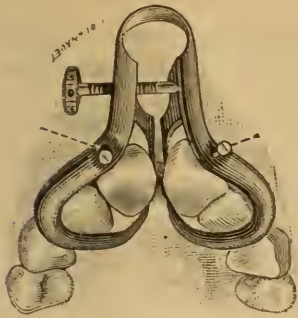
I enclose several illustrations of the instrument in position upon various teeth.

The one upon the incisors has two small screws to adapt it to the varying lengths of teeth, and so to raise the instrument by letting these small screws press upon the ends of the teeth that the points of the separating claws shall not impinge upon the gums.

The one showing the cavities in the molar and bicuspid is shaped so as to rest upon the ends of the teeth, and the pointed ends of the claw are just the length of a short tooth below the middle of the bow.



The last illustration shows a wider bow further removed from the cavity to be operated upon, out of the way of all instruments and with the points of the claws a little further from the middle of the bow, thus adapting it to lower back teeth and to long upper teeth.

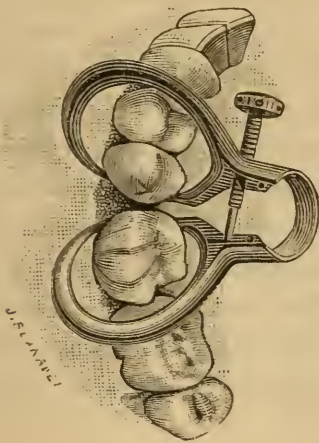


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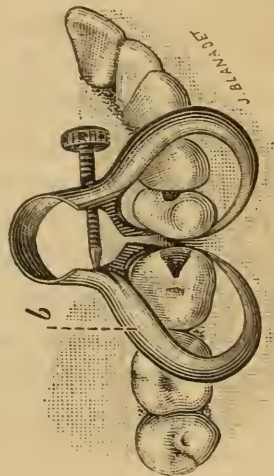
The distance between the points of the claws varies according to the class of teeth it is to be used upon.

For incisors the points would have to be from 4 to 5 millimeters apart, while for molars they might need to be 7 or 9 millimeters, or even more in some cases.

I find that in many cases, if the teeth to be operated upon can be separated with cotton or tape for one or two or more days before the operation, the screw separator being then applied holds them steadily and firmly while the operation is being performed, and so painlessly that patients often go to sleep during the operation.



No. 5.



No. 6.

Of course one is enabled to go on much more rapidly and with less fatigue to both parties.

When the fillings are in, another turn is given to the screw, to obtain room to finish the cervical margins by means of Dr. Smith's disks, that cut only upon the outer margin, and by the use of polishing tapes and sharp lancets.

Upon taking off the separator there remain two knuckles of gold or other filling that touch each other, like two apples side by side, over which the floss silk and the brush can pass readily to completely cleanse the entire circumference of the filling, while these two contiguous fillings, restoring the original or the ideal form of the tooth, effectually prevent

the disagreeable or painful crowding of food between the teeth and under the gums to their detriment.

Last evening, for the first time, Dr. Perry showed me his improved separator. I find that for the incisors teeth such a marked improvement upon my own form, that I desire to make acknowledgment of its superiority.

E. A. BOGUE.

NEW-YORK, 20 East Twentieth Street, February 14, 1885.

—*Independent Practitioner.*

CASES OF TRICHINOSIS.

Dr. J. S. Delavan, communicated a paper describing an outbreak of trichinosis which had recently occurred at Arietta, Hamilton county, a history of which had been brought to the notice of the committee of the State Board of Health, of which he is chairman.

Report of the Committee.—The committee on vital statistics respectfully submits the following report of its investigation into the outbreak of sickness at Arietta, occasioned by the eating of raw ham. On the 5th day of July, the subject was formally referred to this committee by the Central Office. Dr. Beach, the Board's inspector of the district, was at once commissioned by telegraph to make a thorough investigation of the causes of the outbreak and report to this committee. He was also instructed to obtain, if possible, portions of the ham which caused the sickness, and to trace the history of the outbreak as far as practicable to its source.

The committee believing the matter to be of such importance to the public health of the people of the State as to merit it, pains were taken to secure a full scientific investigation. The result will be found embodied in the subjoined reports from Dr. Eugene Beach, on the medical history of the disease, and Prof. William Hailes, Jr., on the revelations of the microscope.

No doubt can be entertained of the correctness of the diagnoses made, and the lessons conveyed are plain and practical. They point first to the importance of impressing upon the minds of the people the danger of consuming uncooked or partially cooked ham or pork, and of making sure that such meat is entirely and perfectly cooked before eating; and second, to the necessity for more care in selecting and preparing porcine flesh for the market. Statistics show that trichinous infection is not at all uncommon in the flesh of swine, that many hams and sides are infected therewith. In view of these facts, when the trachinascope is an instrument which any butcher can use with ease, some legal enactment should be made to prevent the sale of trichinous meat, and some penalty imposed for the sale of an article so dangerous to the life and health of the people.

Medical Report by Dr. Eugene Beach.—On the 2d of July, 1884, Dr.

J. E. Burdick, of Johnstown, stated to me that he had in charge several cases of fever of some kind at Arietta, a hamlet in Hamilton county, that there was some doubt regarding the nature of the sickness, and that the inhabitants of the place were quite alarmed regarding it. At the same time he requested that I should investigate the matter with as little delay as possible. Believing the case to be one meriting the attention of the State Board of Health, I visited Arietta on the 3d of July, inst., and reported the result of my observations to the Secretary, and by your request have made some subsequent observations.

Following is an account of what I have done and found :

On my first visit I learned that there had been twelve cases of sickness more or less severe, and at that time one death. There had been one death subsequent to my first visit. The sickness showed the symptoms of trichinosis well marked. The persons sick had all eaten raw ham at about the same time (June 5 to 7), and from the same ham. All who ate of the ham raw were more or less sick, and none who did not eat of the raw ham were sick. They were all taken sick at nearly the same time. They consisted of Oliver Bonville and boarders in his family. All who had been sick enough to be attended by physicians had more or less fever, but no record had been kept, and they were visited only at intervals of two or three days. In some cases the temperature was found as high as 103 degrees Fahr. The prominent symptoms were diarrhœa and vomiting, fever, sweating, œdema, especially of the face, lameness and muscular soreness and sleeplessness in the adults. In the case of George Sumner, whom I saw about twelve hours before his death, there had been some circumscribed pneumonia apparently. There was hoarseness also in his case, and at the time of my visit his respiration was 39 per minute.

Emma Jane Swan, aged 22, was taken sick June 8, with diarrhœa and vomiting, followed by fever. She was removed to her home in Newkirks, where she died June 25. She had œdema of the face. As she died before my visit I did not see her.

Oliver Bonville, aged 38, was taken sick June 9, with diarrhœa and vomiting, followed by fever. He had œdema of the face, lameness, sweating, and could not sleep. He was convalescing when I saw him July 3.

Paulina Bonville, wife of Oliver, aged 36, was taken sick June 8, with diarrhœa and vomiting, followed by fever. She had œdema of the face and extremities, sleeplessness, sweating, and formication, lameness and vesicular eruption, and was still sick July 11.

Elizabeth Bonville, daughter of Oliver, aged 10, was taken sick June 8, with diarrhœa and vomiting. She had fever, sweating and œdema of the eyes, and was sore and lame. She could not sleep. She left her bed July 1, and was convalescing.

Eugene Bonville, son of Oliver, aged 8, was taken sick July 8, with

diarrhœa and vomiting, followed by fever. He had œdema of the face, sweating and lameness, and was convalescing July 3. He could not sleep.

George Sumner, aged 34, was taken sick June 8, with diarrhœa and vomiting. The diarrhœa continued during the sickness. The vomiting continued one week. He was sleepless; said he could not sleep. He sweat all the time. He had fever. His face was much swollen, especially about the eyes. He had some circumscribed pneumonia. He was hoarse. July 3 his pulse was 96, temperature 100° F., and respiration 39. He died on the morning of July 4.

Joseph Barney ate sparingly of the same ham, and was not sick nor quite well; he was somewhat lame and sore, but kept around.

John Marshall ate of the same ham, at the same time, but had read about trichinæ and ate but little. He was attacked much the same as the others, but got better and went to work in the woods; he was not quite well, but complained of lameness. He called upon me July 12, at my office, and still had the diarrhœa and lameness.

Peter Mayhew, aged 28, was taken sick June 8, with diarrhœa and vomiting, followed by fever; diarrhœa continued two weeks; he had œdema of the face and extremities and great sweating; he could not sleep well; his lameness was not marked. July 11, his pulse was 96 and his temperature was 100° F.

John Burton, aged 29, was taken sick June 8, but went to his work in the woods, and stayed a week; he had a slight chill and was somewhat nauseated; he had diarrhœa, but not much sweating; he had fever; he could sleep fairly; had œdema of the face and extremities and lameness, with some itching; he was convalescing July 3.

John Gilbo, aged 24, was taken sick June 8, with diarrhœa, without vomiting; his symptoms were, in addition to the diarrhœa, sweating, sleeplessness, œdema of the face and extremities and notable lameness; he was convalescing July 3.

D. J. Lyons called upon me July 11; he ate of the same ham, raw, at the same time with the others; he had diarrhœa two or three days afterward, and he has not been well since then; he has felt dull and lame, and has had twitching of the muscles.

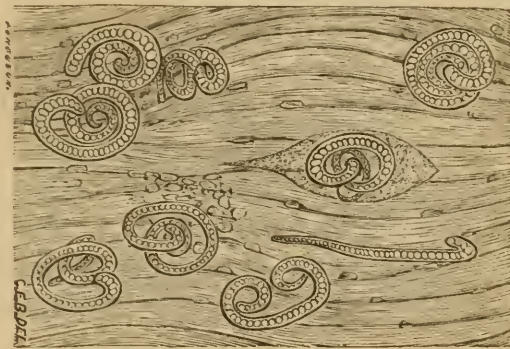
George Sumner died July 4, and was buried July 5. Although the facts already known point so unmistakably to trichinosis as the disease from which these sick persons had been suffering, I thought it wise to demonstrate the actual presence of trichinæ. In pursuance of this object, on the 7th of July, accompanied by Dr. J. E. Burdick and Dr. P. R. Furbeck, I disinterred Sumner's body and secured portions of the flexor muscles of the arm and leg, which I placed in your possession on July 8. These gave abundant evidence of the presence of trichinæ.

Source from which the Infected Pork was Obtained.—By your direction I have also made an effort to ascertain the source from which the ham which caused the sickness was obtained. Mr. Bonville bought the ham on the 30th of May last of L. E. Brandt, in Georgia. Mr. Brandt bought the ham of Clark & Wood, in Fort Plain. The bill is dated April 3, 1884. I enclose correspondence had with Clark & Wood, which shows that the ham came from Chicago; that it was bought of John Taylor, Trenton, N. J., and was packed by Thorn & Co., Chicago.

*Report of the Microscopist, Dr. William Hailes.**—I find upon microscopic examinations of portions of human muscle recently received from Dr. E. Beach, of Gloversville, N. Y., that trichinæ exist in great abundance (twenty-seven in a single field—about 3,000 to the cubic inch).

Some of the worms observed were already enclosed with a transparent cyst, while many were only partially rolled up or coiled upon themselves; others were free in the tissues. The muscular tissue examined was from the extremities.

From the above facts we are justified in concluding that it is an unmistakable case of marked trichinosis of recent origin.



FRESH TRICHINOUS INVASION.

Portion of field showing encysted face coiled and uncoiled trichinæ. Specimens from the Arietta Case.

Origin and Development of Trichinæ.—The following is a brief resumé of a few well-known scientific facts concerning trichinæ:

When infested meat is taken into the stomach in a raw or partially cooked condition, the cysts which surround the trichinæ in their adult state are removed by digestion and the worms set free. They increase in size, and on the second day the male and female reach their full sexual maturity; six days after their maturity the females produce from 1,000 to 1,500, or more, living filamentous embryos. The young begin to wander and invade the surrounding tissues; they pierce the intestinal walls and finally reach the voluntary muscles of their host, growing larger and absorbing the vital juices from the tissues through which they pass. They

* Pathological Laboratory, Albany Medical College, July 12, 1884.

are found in greatest abundance at the insertion of the muscles with the tendons, where they roll themselves up and become encysted, at first transparent and difficult to see, but later presenting a whitish appearance, in consequence of a deposition of calcareous matter, etc., about the cyst, which renders them visible to the naked eye. They remain viable for many years.

Prevention of Trichinosis.—1. Meat should not be eaten raw, nor in a partially cooked condition.

2. Thorough cooking is a perfectly efficient means of killing trichinæ. Large masses of meat (such as ham), however, require several hours continuous cooking for the heat to penetrate throughout the entire mass. A medium-sized ham boiled for thirty minutes reaches a temperature of a little above 100° F. It requires 140° F. to positively kill the parasite. In the case of chops, steaks and other small portions a much shorter time will suffice. A thorough broil for a few minutes will effectively destroy the life of the trichinæ. Ordinary salting and smoking does not destroy the parasite.

3. Thorough inspection of the meat. A regular examination should be made by the State. The matter is easily accomplished. The parts required for a perfectly satisfactory examination are two small fleshy masses situated near the kidneys called the pillars of the diaphragm. These pieces belong to the "trimmings," and their removal in no way interferes with the value or appearance of the dressed hog.

"All hogs should be subjected to microscopic examination by experts, and no hog allowed to be cut up for sale as food until such an examination has been made. Those found invaded should be branded trichinous and their sale as food forbidden by law under penalty of a heavy fine."—Billings.

A certificate should be given if examination proved satisfactory.

4. Prevent hogs from feeding upon raw offal and excrement, and avoid using the offal, etc., of animals subject to trichinosis, as a fertilizer.

5. The thorough destruction of all offal, excrement, etc., so that vermin (rats, etc.,) may not devour it and become the carriers of the dread malady.

Rigid legislative enactment regulating the inspection of meat, the proper disposal of offal, excrement, etc., would, if properly enforced, go far towards stamping out this loathsome disease.

The few words I have to add to the foregoing report, are advisory to physicians.

It has been proven by the cases reported to the State Board of Health, that trichinosis has existed in our State; and that two persons at least, have succumbed to the disease. The habit among farmers and others of eating raw pork, drawn from the brine and highly seasoned with condiments, is

well known. The quantities of ham used at restaurants in the making of sandwiches also is a matter for careful thought.

In view, therefore, of the fact that trichinæ exist in the flesh of the hog; that in very many hams and sides, these parasites are found; and that porcine flesh is a staple article of food amongst thousands of our people, I hold it the duty of medical men to give instructions regarding the danger of eating such flesh unless *thoroughly cooked*. If each physician would explain this matter to his patients, we would hear of few cases like those of Arietta. They should also advocate the using of the trichinoscope, a simple and cheap instrument, by pork butchers; and lastly, by advising those in power, help us to gain a legislative act, that will impose a penalty on those found selling trichinous pork.—*Physicians and Surgeons' Investigator*.

PYORRHŒA ALVEOLARIS TREATED BY DR. RIGGS.

Dear Doctor,—Yours, with queries, is received. Of course I can judge little of the case you mention, not seeing it from my standpoint. The best answer I can make will be to delineate my treatment of it, *ab initio*.

To reiterate my oft-repeated views, I should rely only on *surgical treatment* for the *curative processes*, and *afterwards*, on some simple *palliative* remedies, as topical treatment to the gingival margins. The object of this subsidiary treatment would be to allay any little unrest, or slight pain, that may follow from the severe operation of making a *fresh* wound of a *chronic* one. In the worst cases, I use phenol sodique, one fourth dilution, applied by myself, on a pellet of cotton, after the sitting; then, I order myrrh tincture, full strength, touched by the index finger of the patient to the margin of the gums, every waking hour for the first day, and several times a day thereafter for a week. The alcohol of the tincture stimulates the gum tissue sufficiently, and the myrrh has the best of therapeutic properties.

I inject nothing beneath the gum, not *even water*, for anything, so used, would wash out that protoplasmic exudation from the *fresh* wound which should remain undisturbed. If the surgical operation be well and skillfully done, any "*pocket*" there may be will fill with fresh blood, which will be metamorphosed very soon into a formation of flesh and blood tissue, that just answers Nature's demands. If we wash out these formative bodies, or inject an escharotic, and sear the tissues it touches, we do harm, and Nature will sharply rebuke us for our presumption. It is a work of supererogation, which she will not enter up to the credit side of our account.

The curative power then resides in the perfection of the surgical operation, and not in the therapeutic treatment. In the first and second stages of the disease, no palliative remedies are *really* needed; but in the third and fourth, they assuage the pain incident to the severe operation, and constrict the gums about the necks of the teeth, thus shutting out all foreign bodies from crowding under the gums. Yet I prescribe the above-named remedy for the *after treatment* in *all stages* of the disease. It warms up the mouth, and sustains the interest of the patient in the recuperative power of the operation.

The instruments necessary for the treatment consist of a set of six, and can be obtained of the S. S. White Dental M'f'g Co., Philadelphia. I find them uniformly good in steel, temper and pattern, and I could use no others and be successful in the treatment of this covert and insidious disease.* Their manipulation is peculiar and particular, and needs minute, critical, clinical instruction, for anyone to successfully treat these cases. Failure, either entire or partial, will confront the beginner, unless he is furnished with the right methods of procedure to begin with; besides, I submit the point, is it fair, and in accord with the ethics of the profession, to experiment blindly on the patient, when ample clinical instruction can be obtained?

It would take many pages to describe the relative position of operator to the patient, the mode of holding the instrument, its various motions *on* and *about* the tooth, its progress down to the line of health of the tissue, and its clean and perfect work on the tooth in its passage to that line. The blood wells up over the tooth, so that the eye is of limited use, and the operator must learn to go forward with his work, without halting to wipe away the blood, so as to see the parts. He must distinguish by the delicacy of touch of the fingers, what his instrument impinges, whether limey concretions, or abnormal ulcerative periodontal membrane; or the regular or irregular absorption of the alveolus, and its condition of health or of disease. He must so minutely know each and every undulation or depression of the periphery of the tooth, that his instrument may unerringly follow its surface, and touch every hair's breath of it; for all metamorphosed or diseased membrane must be broken up, to enable nature to cast it forth, and to apply her recuperative processes. We must also remember, that, although the gums and the alveolus are the culminating territories of this disease, it is far-reaching in its effects. Its inflammatory action pervades the malar, nasal and other bones of the face, involving the nerves that traverse both the outer and inner plates or surfaces of these bones, together with their

* The writer has no interest in the manufacture of said instruments, except to have the profession supplied with a first-class article.

lining, or mucous tissues. Hence all catarrhal affections are aggravated, in one case the sight was affected to partial blindness; in another, a complete paralysis of the upper lip, attended with severe neuralgia of the face and head; in another, the tongue was so much swollen that deglutition of solids was impossible—the right and left edges of the tongue to the tip were so eroded as to resemble raw beef, and that organ was pronounced cancerous by a respectable physician, and an operation for its partial loss advised.

This enumeration of the effects of this disease omits all mention of gastric, renal and other derangements, including those of the alimentary canal, etc.

All these cases, and many more of a milder type, were entirely cured by surgery, applied to the gums, teeth and alveolus of the inferior and superior maxilla.—*Southern Dental Journal*.

THE UTILIZATION OF WASTE SCRAPS OF OLD AMALGAMS AND BY-PRODUCTS OF DENTAL PRACTICE.

BY PROF. CHAS. MAYR, SPRINGFIELD, MASS.

Extract from a paper read before the Connecticut Valley Dental Society.

During a practice of only a few years there accumulate in a dentist's office all kinds of scraps, mostly consisting of old amalgams, plugs, etc.; they are a small affair in themselves, but so long as dentists pay \$2.00 and over for an ounce of alloy, it is worth while to give five minutes' attention to a box of amalgams containing perhaps five ounces. If there is nothing but amalgams in the scraps, I think the most legitimate use to be made of them is to remelt them, to drive off the mercury, to file them, and use them again. Many dentists use only one kind of amalgam; by properly conducting this process they may get as good amalgam as the original; the best way to proceed is about this:

Put the scraps into a Hessian crucible; add for every ounce of amalgam half an ounce of cyanide of potassium; heat at a dull red heat for a couple of hours in a good draft and pour the resulting metal into an ingot; it gives a cleaner product if during the process the crucible is covered.

This ingot may be filed and will be found to give as good amalgam as the original; it is important that the heat should not be too high, otherwise some tin will volatilize, and thereby the proportion of the metal will be altered.

The cyanide of potassium is an excellent flux, because it melts at a low temperature, and excludes every trace of oxygen. If the operator does not care to recover amalgam in this manner, he may extract the precious metals from the amalgam in the following manner:

The old scraps are melted, with access of air, in a strong draft at a temperature at which silver melts. Almost all the mercury is thus driven off, and a considerable amount of the tin oxydizes; the resulting mass is granulated by pouring it into water and then dissolved in nitric acid which oxydizes the tin and silver, and because commercial nitric acid almost always contain chlorine, so some of the gold; the greater part of the gold, however, remains undissolved in combination of oxide of tin. After the oxidation has ceased, a powder will be found floating in the liquid varying in color from white to violet; white, if no gold is present, and colored the more the greater the amount of gold. The turbid solution is diluted with water, say to five times the original volume, it is set aside for a couple of days, and then the almost colorless liquid on the top carefully poured off. This liquid contains usually nothing but silver and copper; to precipitate the silver it is poured into a solution of salt containing about half an ounce of salt for one ounce of amalgam; a white curdy precipitate is obtained which is chloride of silver; by gentle shaking, it can be made to cling together and to settle rapidly to the bottom; the liquid is decanted, the precipitate washed once or twice, collected on paper, allowed to dry, mixed with about twice its bulk of black flux, which is nothing but soda and flour mixed in equal proportion. This mixture is put into a sand crucible and melted at a bright red heat. A globule of pure silver is thus obtained at the bottom of the crucible, which may then be utilized further. To recover the gold, the violet precipitate from which the first solution of silver was decanted is washed a couple of times by decantation; it is then treated with a mixture of hydrochloric and nitric acid, about one ounce for every ten ounces of amalgam; its color will disappear and a yellow turbid liquid result. This is diluted, allowed to settle, decanted and mixed with a solution of common sulphate of iron (copperas), impure gold is precipitated as a bluish powder, it is collected on a filter, melted in a clay scorifier with a little saltpetre and repeatedly dissolved and precipitated.

In this way alone the gold can be completely freed from the tin; the oxide of tin obtained during this process may be dried, and is the commercial putty powder.

I know that these things are simple, have been told often, and contain little new; but perhaps some one has not yet heard of them, and, if so, this will have been sufficient inducement for me to give this synopsis.

—*Archives of Dentistry.*

FILLING PERMANENT TEETH OF CHILDREN.

DR. C. M. MARSHALL.

Having had occasion, during the past few years, to extract many teeth for children between the ages of eight and fifteen, that had been filled with cohesive gold, and as such cases continue to present themselves to me, I wish to earnestly protest against such practice. I consider it pernicious.

1st. Because gold is not the best material we have for filling such teeth.

2d. Because a filling that will not save a tooth, serves usually to mask the real condition until pulp irritation, and frequently inflammation, ensues.

3d. Because we have filling materials that will arrest decay in these teeth, and preserve them until maturity is reached, when they will be sufficiently hardened to receive gold as permanent work.

To return to my first statement: Before maturity, many teeth are so soft that the pressure necessary to impact cohesive gold solidly in apposition to the walls of a cavity, will, in a great majority of cases, cause fractures of the edges of the cavity. Though they may sometimes be infinitesimal, they will yield to the action of the fluids of the mouth, and further caries follow.

I moreover claim that gold is not the best filling material for such teeth, inasmuch as it requires such great endurance that a child will frequently leave your chair wishing he had not a "tooth in his head," mentally vowing he will never have another filled. Thus children in their tender years conceive an antipathy for you and your practice, which only grows with time.

In my second statement I occupy ground familiar to all. If not, let the operator, who has been pursuing the course herein condemned for at least three years, come to the front and teach us, and tell us he never finds anything wrong around his gold fillings in such teeth. I grant many are saved, but are we meeting the demands rightfully made upon us if we lose any, when we have charge of them at the time caries first appear, and the proper hygienic laws are obeyed? Why should one of four incisors, with caries of similar extent, be lost, after an equal amount of care has been bestowed upon filling each? If the nonsense of incompatibility is manifest in the lost tooth, why does it not exhibit itself in the others? If the mystical electrolysis does not disintegrate three, why should the fourth yield to it?

I claim for my third position, that children's permanent teeth, though sometimes deficient in lime salts, can be preserved if the proper course is judiciously pursued, and in doing this I do not pretend to offer anything

new to the profession, but to reiterate truths already spoken, which have proven by practice worthy of repetition. I simply add my protest against the old methods, trusting that if there is one practitioner who has not before, he may now, investigate this matter, and become better prepared to meet the just demands imposed upon him, thus honoring his profession more highly, and adorning his personal character, by increasing the gratitude and confidence of his patrons.

I recommend this practice: Fill teeth which are exceedingly deficient in structural constituents with either oxy-phosphates or oxy-chlorides. These fillings are only intended to serve a period of six months or two years, the time depending much upon the chemical reaction of the fluids of the mouth. If, when they are partly solved, we do not find a great improvement in the texture of the teeth, we should refill them with the same material, and repeat it until there is sufficient integrity of tooth structure established to maintain more permanent work. Where we find these teeth fairly supplied with lime salts, a high standard of amalgam may be used, especially for bi-cuspid and molars, which will serve much the same purpose, requiring less frequent renewal, and possibly none at all. By this means we can bridge over the most dangerous period of carious permanent teeth, and finally fill them with cohesive gold.—*Southern Dental Journal*.

FILLING MATERIALS.

To the Editor of the "Journal of the British Dental Association":

SIR,—Your correspondent, "Experientia Docet," has evidently no idea of the difficulty of what he proposes. To get a correct analysis of all the amalgams in the market would cost a very considerable sum; for any private person to make the assays would be useless, or worse than useless, as the results would be disputed by every maker. Very few samples of amalgams in the market can be depended on to come out twice alike, and only those who are in the habit of assaying can form an idea of the practical difficulty of making two ingots, or even two parts of the same ingot, alike in composition. Supposing this work to be done, we have again to contend with the different ways operators will use the same material, and the practical result is that a filling which is good in the hands of one operator may be worthless in the hands of another.

With regard to the "whole class of plastic fillings, other than amalgams," the difficulty is still greater. There are many white fillings in the market which are quite beyond the reach of either the chemist or the microscope, and in the absence of some special information, it is simply impossible to tell how they are made. In preparations of oxide of zinc alone, each maker has his own process, which he must either keep to him-

self or give up the idea of being repaid for his labors, for he would have a host of imitators at once; perhaps no one has suffered so much as myself on this point. The powder of almost all white filling in use at present is a more or less pure oxide of zinc, and yet its preparation in the densest form capable of being taken up quickly in combination, is a matter kept secret by all makers. Some fuse it into a mass with a trace of borax or glass, and grind the result, others prepare it by heating certain zinc salts to exact temperatures, others by selecting the heavier oxides from the flues of the subliming chambers, others by pressure; but, given the chemical composition, an outsider would find it almost impossible to produce an exact copy of any given preparation unless he had the details of the process explained to him in the most minute way. Secret processes are to myself an abomination, they class with patent medicines, quack doctors, and other similar evils, but there is really no help for them, they must exist, or there are plenty of unprincipled rogues ready to cheat the original investigator out of the result which has perhaps cost him years of labor and a little fortune to arrive at. I have worked amongst white fillings long enough to be able to tell almost in every case without hesitation the process used in their manufacture, but it might take three months hard work to produce an exact copy of any one, and until this exact copy is produced, it is not possible to say positively how any material has been produced. The same remarks as to the different manipulation of different users apply to these fillings as well as to amalgams, and the whole subject is so beset with difficulties, that it is not likely any committee will ever have the time, the money, and the patience to wade through it. I have given up years of steady systematic work to experimenting on plastic fillings, in fact, the greater part of the apparatus in my laboratory list was designed specially for this work, and the conclusion arrived at in my own mind is that very little is known on the subject, and failing some purely accidental discovery, the working out of any great improvement will be the work of a life-time.

I am sir, yours, etc.,

WARRINGTON, Jan., 1885.

THOMAS FLETCHER.

THE LARGEST ELECTRICAL INFLUENCE MACHINE IN THE WORLD.

There has just been completed for the physical laboratory at South Kensington, the largest electrical influence machine in the world. It is made on the now well-known pattern of the Wimshurst machine, and was constructed by Mr. Wimshurst himself for the laboratory, at cost price. The discs are 7 ft. in diameter, of plate-glass, $\frac{3}{8}$ in. thick, and

weigh 280 lbs. each. They are pierced with a central hole $6\frac{1}{2}$ in. in diameter, and are firmly attached to gun-metal bosses 15 in. long, which run freely on an iron tube 3 in. in diameter. This tube is supported by Λ frames of oak, having heavy gun-metal caps so shaped as to afford a support for the iron tube and ebonite rod to which the collecting combs and discharging terminals are attached. The "neutralizing" rods of brass, with their fine wire brushes, are attached to the projecting ends of the iron tube, while the pulleys are firmly secured to the outer ends of the gun-metal bosses. The discs, which are varnished with shellac dissolved in alcohol, have each 16 radial sectors of tinfoil 19 in. long, with a mean width of 1.65 in., thus having an area of 31.35 square inches each, or a total metallic surface on each plate of more than 500 square inches. The collecting combs are connected to the discharging terminals by interchangeable brass rods, bent or straight, so that the position of the combs with respect to the horizontal diameter of the discs can be varied within about a 16 in. range, that is 8 in. above and below a line representing the horizontal diameter of the plate. The discharging rods are of $1\frac{1}{4}$ in. brass tubing, and are fitted with interchangeable brass balls of different diameters. The distance apart of these balls can be varied by turning the glass handles at the other end of the discharging rods, which are made to revolve around a vertical axis, so that the terminals can be separated by any desired distance. At the time of writing, we believe, the machine has not been tried under favorable conditions; but in the workshop, surrounded with a variety of metallic conductors, and in an atmosphere rendered rather damp by the escape of steam from a boiler and engine at work, it started at once, and maintained a constant stream of sparks 14 in. in length—a performance which will no doubt be improved when, under the care of Prof. Guthrie, it is fully tested in the laboratory at South Kensington.—*English Mechanic*.

THREE POUNDS AND TWO DRACHMS OF MERCURY CARRIED IN THE INTESTINAL FOR THIR- TEEN DAYS.

Mr. A. K. Young records (*British Medical Journal*) a case of intussusception in which he had in vain tried a water pressure per rectum, the pressure corresponding to a column of water thirty feet high. He then introduced a tube into the stomach, and, with the aid of a funnel, he poured in two pounds of mercury. This was at 6 P. M., May 7th. At 10 P. M., one pound and two drachms more were introduced. This was the whole of the mercury in the hospital. The patient was sent to bed,

and directed to lie on his right side for an hour, and after that to study his own comfort.

The two following nights were reported as having been passed quietly. On the 10th, he was vomiting everything he took, and no passage through the obstruction had been effected. On this day he sent for his horse and cart to leave for home. Mr. Young made no objection to this plan, but rather encouraged it, with the hope that the jolting would facilitate the passage of the mercury. He started for home at 6 P. M., of the same evening. On the day after, small quantities of the mercury appeared in the bed. From this time small quantities of mercury and small fecal discharges occurred daily. On the 20th a large fecal discharge occurred, but it was not until the next day, the 21st, or nearly thirteen days after its introduction into the stomach, that the great bulk of the mercury was evacuated. Mr. Young says: Neither during the time it was blocked up in the abdomen, nor at any time after its discharge, was there any symptom, constitutional or local, to indicate its presence. Mr. Young discusses the probable mode of action of the mercury under the circumstances. The explanation must necessarily be incapable of demonstration, but the interesting fact remains that the patient recovered, after a diligent use of all the regular classical means, short of abdominal section, had been tried in vain.—*Weekly Med. Rev.*

IDEAL DENTISTRY.

BY W. H. METCALF, D. D. S., NEW HAVEN, CONN.

It is natural that dentists should look with pride upon the rapid progress made by their profession during the past fifty years; and it is not unbecoming that they should refer to it as something quite marvelous and unexpected; but, while this seems, and is quite true, the fact remains that dentistry is but keeping a good pace with the remarkable advance of world civilization, and that it is growing and improving, but to supply a demand the existence of which indicates a general improvement among men. In fact, to keep up with the universal progress and present to the expectant public finished dentists, strenuous efforts are constantly being put forth, and have taken the form of dental conventions, dental societies and dental colleges. Journals and publications, not perhaps with the same aim, but with the same effect, are now issued, culling for their eager readers, the ripest ideas of the most experienced practitioners; and business houses have been established, who send agents to every corner of the land with specimens of the latest and

best mechanical devices. Thus efforts to disseminate ideas, and improve the status of the profession, are nourished and encouraged *de facto*, by the actual necessities of the case. If a dentist has intelligent inquiring patients he must be an intelligent inquiring practitioner, or he will fail to satisfy their natural wants.

In recognizing the great strides that dentistry has made, we should not shut our eyes to the wonderful enlightenment of humanity at large. The world is progressive. We are living in an age of light; some say the *millennium* itself.

As a profession we are indebted to the outside world for the great majority of practical ideas which we have utilized. Nearly or quite all great discoveries are the offspring of accident. Nothing is really new. Nature simply hides things from our dull, mortal eyes, until we stumble upon them, and lo! they are revealed, and seem novel. Electricity existed before Franklin, and it took Morse, Bell, Edison and a score of experts to perfect and apply the simplest form of electric current, for the accurate transmission of sounds, notwithstanding the thunders had rolled over the heads of men for ages.

In the same way that material nature holds undiscovered treasures in her bosom, so do men who are but a part of the grand scheme; and there are to-day stored away with professional dentists thousands of jewels which though occult, and hard to discover, are nevertheless of immeasurable value.

These occult professional faculties undeveloped, and constantly developing, are what we wish to call particular attention to in our paper to-day, and what we recognize as the fuel which shall feed the fire of the ideal dentistry of future ages.

Two men, equally good workmen, start on an equal footing in the same city, at the same time, in the practice of dentistry. At the end of a year or two, one has acquired a lucrative and rapidly growing practice, while the other is in despair at the slow progress of his ambitions. Why is it? One is practically as good a dentist as the other, but he lacks those innate faculties which go to make the ideal dentist. What are these faculties! They may be divided into two classes. The first relates to the *personnel* of the dentist, or those qualities which make up his personal appearance and manner, such as neatness, a pleasant face, and gentle demeanor. The other class are more obscure, more difficult to define, but are nevertheless of the greatest importance. They relate to his soul-bearing. They are a part of the very foundation of his professional strength. They are the buds which promise the full-blown flowers of professional success. Let us analyze a few of these buds. First: there is that peculiar faculty which enables him to make himself "*en rapport*" with his patients, be they high, or low. By the exercise of

this faculty he not only facilitates his own endeavors, but sends his patient away refreshed, instead of fatigued in body and spirit.

Next, he possesses the faculty of absorbing the mind of his patients by ingenious turns of conversation, so that they become in a great measure oblivious to ordinary infliction of pain.

Again, he may possess that wonderful faculty called animal magnetism, which is of invaluable use in the treatment of children, winning at once their young hearts, and gaining their implicit confidence; thus avoiding many disagreeable delays and disappointments. It is within the bounds of possibility for children to beg to "go to the dentist." Another faculty which the ideal dentist may possess, is the ability to read character. This peculiar gift is natural to many, but it may be cultivated by a faithful study of human nature, as evidenced by temperament, and the wisdom which the study of physiognomy, phrenology, and mental science will bring.

There are many other obscure faculties which deserve mention, but which space forbids; one most important one however we would urge upon the attention of the intelligent dentist. It is the highest faculty which man can acquire. It is the art of divining the moral status of a person, by that instinct which is the fruit of the diligent study of physico-theology, or psychology. If there is much in a flower that leads us to God, surely in man, God's image, we can by research, decipher a universe of particulars, which will be intelligible, in the ratio of our ability, as ideal dentists, to interpret them. We know that in our skeptical age many intelligent men shrink from lifting the veil of materialism; but while such grope in the background of nescience, there are thousands more advanced, who pluckily press forward in the eager endeavor to peep into the invisible. May their eyes be fully opened; and may they all in time realize that, above the plane of matter, there is a superior realm, divulging happy secrets of incalculable value to the truth-seeking man. May they be convinced, that, the laws of matter, are subservient to occult laws, as much higher as Heaven is above the earth.

In emphasizing the importance of these higher laws as essential to professional perfection, we do not wish to be understood as underestimating the necessity of mechanical thoroughness. They must work together, and harmoniously, to produce the dentist who is worthy of success.

There is no profession which is better adapted to the study of human nature than dentistry. The physician is perhaps as fortunate in many respects, but even he is called only to the sick.

What is the key to our little arcanum? Study! A dentist cannot know too much. The more he knows, the better will be his life chances for success, both professionally, and as a man among men. Life becomes

then, instead of a stupid routine, an experience, full of delightful surprises ; a genuine pleasure, not only to himself, but also to his fellow-men.—*The Dental Practitioner.*

DANGERS OF WEARING SMALL DENTURES.

BY JOHN TRUDE FRIPP, L. D. S. R. C. S. I.

In the *British Journal of Dental Science*, for the first of February, a case is recorded in illustration of the danger of sleeping with artificial teeth. From the fact that the plate passed safely through the alimentary canal I should judge it must have been a very small one. Certainly patients should be warned of the danger of keeping an artificial denture in the mouth at night ; but I would go a step further, and urge that there is considerable danger incurred in wearing very small dentures at any time. A lady came to me only a few months ago with a small vulcanite plate, carrying the two upper bicupid teeth of the right side, which she told me she had swallowed, but happily passed safely per rectum. They had become displaced during dinner, and passed into the oesophagus with the food before she became aware of what had happened. I had warned her previously of the danger, as the attachments were not secure, but the plate had been worn for several years and the danger was not appreciated until the accident occurred. It may, of course, be urged that had the dentures in these two cases not been so small the wearers could not have passed so happily through the accidents, but on the other hand is it not reasonable to urge that had they been *much* larger the possibilities of their being swallowed at all would have been much reduced.

I have for some time given up the making of small cases, and even for a single front tooth prefer to put in a palate.

A small case always requires clasps, which in the larger cases may very often be dispensed with.

There are certainly three distinct advantages in making the cases larger. (1.) Much greater firmness is ensured. (2.) The natural teeth are not so likely to be injured as by the tight clasping of bands and wires. (3.) And there is much less likelihood of a case being swallowed.—*British Journ. Dent. Science.*

DEATH FROM NITROUS OXIDE GAS.

The occurrence of a death under nitrous oxide has lately caused a good deal of excitement in Paris. A retired magistrate, named Lejeune, went to a M. Duchesne, a well-known advertising dentist of Paris, to

have a tooth extracted. Gas was administered, and the operation performed; it was then discovered that the patient was dead. From the fact that there was no appearance of hemorrhage when the extraction took place, it is inferred that death must have occurred just prior to the operation. An examination of the body was made by Dr. Brouardel, but so far as we can learn, his report has not yet been made public. Judging, however, from the statements which appear in the French journals, death would seem to have been quite sudden, and to have been due to syncope, or failure of the heart's action, caused by the fear or the shock of the operation. One result of this unfortunate occurrence has been, says the editor of the *British Medical Journal*, that a discussion has arisen in the French papers as to the right of dental practitioners to administer anæsthetics. It appears that, as a matter of strict law, only legally qualified practitioners of medicine are allowed to administer anæsthetics in France, but that this law has seldom been put in force against dental practitioners, even with reference to the use of chloroform and ether. The use of nitrous oxide is not expressly forbidden; and, owing to the general impression that it was free from danger, no question has hitherto arisen as to its use. Whether any attempt will now be made to impose restrictions remains to be seen. Another point referred to in this correspondence is one of which we have repeatedly pointed out the importance, namely, the necessity for the presence of a third party, whenever an anæsthetic is administered, to give assistance in case of accidents, and also as a witness. Cases illustrating this point have so frequently come under our notice, and we have referred to the subject so often, that we hope it is unnecessary to say more.—*British Journ. Dent. Science.*

“A GAS FURNACE FOR FIRING DENTAL ENAMELS.”

Editor “Items of Interest” :

In a paper on the above subject in your January issue, by W. H. Rollins, I note the remark: “Porous fire-clay was known in Strabos’ time, though T. Fletcher, with his usual capacity for adopting other men’s ideas, has recently re-invented it.”

I cannot be suspected of seeing porous fire-clay in use in Strabos’ time, but it certainly has been known and used before my own time. I was the first to make use of it for small gas furnaces, and if there is any “adopting of other men’s ideas” in the matter, Dr. Rollins is entitled to the credit of it.

He also states that he “has been able to do what has never been done before in a gas furnace — produce heat enough to bake in as short a time

as forty minutes from the time the gas is lighted." He may be well acquainted with the history of "Strabos' time," but he knows very little of the advances in his own profession, or he would have heard of Verrier's furnace, known in England for some years past, which, without the assistance of naphtha or hot blast, will bake teeth in twenty or twenty-five minutes from the time the gas is lighted, and therefore, his achievement, even with his capacity for adopting the ideas of Neilson, Siemens and myself, is not so brilliant as he imagines it to be.

WARRINGTON, ENGLAND.

THOS. FLETCHER.

DENTAL LAW IN THE TERRITORY OF DAKOTA.

The Legislature of the Territory of Dakota has just passed an act "to insure the better education of practitioners of dental surgery and to regulate the practice of dentistry." The act was approved by the Governor March 10, 1885. Below are given extracts of the more important portions of the law:

Be it enacted by the Legislative Assembly of the Territory of Dakota:

SECTION 1. That it shall be unlawful for any person to engage in the practice of dentistry in this territory unless he or she shall have obtained a certificate, as hereinafter provided.

SEC. 2. A board of examiners, to consist of five practicing dentists, is hereby created, whose duty it shall be to carry out the purposes and enforce the provisions of this act. The members of said board shall be appointed by the Governor, who shall select them from ten candidates, whose names shall be furnished him by the South Dakota Dental Society and the Northwestern Dental Association; each shall furnish the names of five candidates, and the Governor shall select at least two from each five names so furnished to the members of said board. The term for which the members of said board shall hold their offices shall be five years, except that the members of the board first to be appointed under this act shall hold their offices for the term of one, two, three, four and five years respectively, and until their successors shall be duly appointed. * * * It shall be the duty of said dental organizations to present twice the number of names to the Governor of those to be appointed.

SEC. 3. Said board shall choose one of its members president, and one the secretary thereof, and it shall meet at least once in each year, and as much oftener, and at such times and places, as it may deem necessary. A majority of said board shall at all times constitute a quorum, and the proceedings thereof shall at all reasonable times be open to public inspection.

SEC. 4. Within six months from the time this act takes effect, it shall be the duty of every person who is at that time engaged in the practice of dentistry in this territory to cause his or her name and residence, or place of business to be registered with the said board of examiners, who shall keep a book for that purpose.

The statement of every such person shall be verified under oath, before a notary public or justice of the peace, in such a manner as may be prescribed by the board of examiners.

Every person who shall so register with said board, as a practitioner of dentistry, may continue to practice the same as such, without incurring any of the liabilities or penalties provided in this act, and shall pay to the board of examiners for such registration a fee of one dollar.

It shall be the duty of the board of examiners to forward to the register of deeds of each county in the territory a certified list of the names of all persons residing in the county who have registered in accordance with the provisions of this act; and it shall be the duty of all registers of deeds to register such names in a book to be kept for that purpose.

SEC. 5. Any and all persons who shall so desire may appear before said board at any of its regular meetings, and be examined with reference to their knowledge and skill in dental surgery; and if the examination of any such person or persons shall prove satisfactory to said board, the board of examiners shall issue to such persons, as they shall find to possess the requisite qualifications, a certificate to that effect, in accordance with the provisions of this act; said board shall also indorse as satisfactory diplomas from any reputable dental college, when satisfied with the character of such institution, upon the holder of such diploma furnishing evidence, satisfactory to the board, of his or her right to the same. * *

SEC. 6. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction may be fined not less than fifty dollars nor more than one hundred dollars, or be confined six months in the county jail. * * * *

SEC. 7. Any person who shall receive a certificate of qualification from said board shall cause his or her certificate to be registered with the register of deeds of any county in which such person may desire to engage in the practice of dentistry, and the registers of deeds of the several counties in this territory shall charge for registering such certificates a fee of twenty-five cents for such registration.

Any failure, neglect or refusal on the part of any person holding such certificate to register the same with the register of deeds, as above directed, for a period of six months, shall work a forfeiture of the certificate, and no certificate, when once forfeited, shall be restored, except upon the payment to said board of examiners of the sum of twenty-five dollars as a penalty for such neglect, failure or refusal.

* * * * *

SEC. 8. Any person who shall knowingly and falsely claim or pretend to have or hold a certificate of license, diploma or degree granted by any society, or who shall falsely and with intent to deceive the public, claim or pretend to be a graduate from any incorporated dental college, not being such graduate, shall be deemed guilty of a misdemeanor, and shall be liable to the same penalty as provided in Section 6 of this act.

SEC. 10. This act shall take effect and be in force from and after its passage and approval.

Approved March 10, 1885.

PROCEEDINGS OF DENTAL SOCIETIES.

NEW-YORK ODONTOLOGICAL SOCIETY.

The New-York Odontological Society held a regular monthly meeting, at the residence of Dr. W. H. Dwinelle, No. 15 West Thirty-fourth Street, Tuesday evening, December 16, 1884.

The President, Dr. William Jarvie, in the chair.

INCIDENTS OF OFFICE PRACTICE.

Dr. J. SMITH DODGE, JR.: I would like to say a word about a way of using cocaïne. I suppose we are all experimenting with it, and I think we have all learned by this time that, like a good many other things, there is more in it than we had at first supposed. But there is one use that so promptly approves itself that I take the opportunity to suggest it to any of you who have not thought of it. We frequently have to do a little violence to the borders of the gums, and I have found that, by simply giving the gum a bath of the four per cent. solution of cocaïne, you can put on the rubber-dam and work it up with ligatures to your heart's content without causing pain. In the same way, trimming off the cervical border of approximal fillings, from being, with many patients, one of the most objectional features of the operation, becomes painless. This is quite on a line with the use that surgeons have made of the drug. It renders these operations so comfortable to the patient and delightful to the operator that, the other day as I was using it again in that way, it occurred to me that I would mention it here.

President JARVIE: This is a very admirable suggestion that Dr. Dodge has made. Many of our members have been experimenting of late with this agent, and there may be something else to be presented on the subject.

Dr. J. MORGAN HOWE: I will say that I have twice applied a ten per cent. solution to exposed pulps that had been irritated and were aching very severely, and the result was almost instant relief. In another case a pulpless tooth with periosteal inflammation of an acute character was aching severely, when an application of the same solution in the canal of the root was followed by marked amelioration of the pain very soon afterwards.

President JARVIE: I will ask Dr. Howe if, in the case in which he applied it to an exposed and aching pulp, it acted any differently or any better than creasote or carbolic acid would have done?

Dr. HOWE: I could hardly say whether it acted any quicker; I do not think it did act quicker than I have seen carbolic acid or creasote act; but it acted quicker than either of them ordinarily acts. That is all I can say about that.

President JARVIE: The question in my mind was whether it was preferable to the remedies we had already in the cases you speak of—those of aching pulps.

Dr. HOWE: I do not know whether the effect of the cocaine would be as lasting. I should expect its anæsthetic effect to pass off in from fifteen minutes to three hours. I have known it to last as long as three or four hours, but I believe the universal experience has been that its effects are transitory.

Dr. DODGE: I can describe one case in which the effect of cocaine was very striking and very satisfactory. It was a lower bicuspid, largely decayed, and having that unpromising look that we are all familiar with. The first touch of the instrument to the debris in the cavity gave severe pain. The rubber-dam was put on, and a drop of cocaine was mixed with the mass that lay in there, and in two or three minutes it was possible to partially cleanse the cavity. Then some more cocaine was applied, and after three or four more successive applications of it in that tooth, I was able, with a broad spoon-shaped excavator, to scrape vigorously across the bottom of the cavity, where there was an exposure of the pulp as big as the head of a pin, and which looked thoroughly red. The lady, who was an intelligent patient, and knew what I was doing, assured me that I had given her no pain that was worth speaking of. The cavity was subsequently filled in the way I usually follow, and several weeks have elapsed without my hearing anything from it. I certainly should have heard from it if it had not done well. In this case an operation that usually would be exceedingly painful was made painless, and without the least ill result following. I had another case where there was not quite an exposure of the pulp, but from the character of the patient's teeth, which I have known for a good many years, it is very certain that we should have had a scene if I had not used the cocaine. But, in that case, the operation was pronounced absolutely painless.

Dr. F. Y. CLARK: I have been experimenting with this drug somewhat, and, from the results of my experiments, and from what I have heard stated by others, I am inclined to believe that I could not have had a pure article. I have tried from four to ten per cent. solutions, with rubber-dam on, and under very favorable circumstances, and it had no more effect than so much water. In fact, I think the teeth were more painful after its application than they were before. I procured it from a reliable party, who assured me they made it from the crystals. We have but one agent that will accomplish what we want in certain cases of sensitive dentine, and that is arsenious acid; and we know how dangerous an agent that is—that we cannot use it in any case without danger to the pulp. It may be well to inquire what is the effect of cocaine when it is left in a tooth one, two, or five hours. If it accomplishes so much in a

few minutes, what would be the effect if it was left in a little longer? We do not know how far its action may go, and it would be well to consider what the effect is of so powerful an agent upon the pulp of a tooth. Possibly the tissues may absorb it to a dangerous extent, and its effect may be such that we may finally have more trouble from its use than the temporary good effects will warrant.

Dr. W. H. ATKINSON: With reference to the subject of cocaine, it may be well to state what has been very largely published regarding the experiments with this agent, which is, that it has the peculiarity of having no reaction; it is the one anæsthetic that leaves the system without reaction, so far as known, and it has been used in very large doses, both internally and by subcutaneous injection. I have had it used in my own person, and I know it does not take long to recover from its effects. I have used it in my patients' mouths, where reaction came on so gradually that they did not know the time when its influence left. I do not think we need to be at all deterred from using it vigorously, either the alkaloid itself or any aqueous solution we may make. I have made my own solution. I have not seen much difference in the anæsthetic effect of the ten per cent. solution and other strengths down to two per cent. I think there is a difference in the sensibility of different organisms that makes a great difference in its effect. I have been led to think that it has to be absorbed into the tissues. One case occurred in Chicago where a boy, eight years of age, by breaking a glass, cut his arm so that the veins and the radial artery were severed. A surgeon seized it, tied it up with a handkerchief, and painted it with cocaine—the four per cent. solution. He then took up and tied the vessels which required ligation, and used torsion on the smaller ones. During the operation the boy kept getting ready to flinch, but did not. When asked why he did not, he said he expected to feel the pain, but did not feel it. I judge from that case that the cocaine is absorbed into the tissues.

Dr. W. H. DWINELLE: I think that our prior knowledge of the coca plant, from which cocaine is derived, before we knew of its anæsthetic properties, would justify us in considering it a harmless remedy. We know that for many years the leaves of this plant have been an article of export all over the world. I would not undertake to state, without the authority of the figures before me, the extent of the exportation of the leaves, or how many hundreds of thousands or millions of dollars are employed in it; but we do know that the article has been known for a long time—since the early part of the sixteenth century, I think—and regarded almost with superstition, being called by the natives of Peru the "divine plant." For hundreds of years it has been used freely as an article of peculiarly invigorating effect as a tonic—I had almost said of diet. The natives of Peru, who carry heavy burdens up and down the

mountains, are satisfied, if their pockets are filled with coca leaves, to dispense with all other food or diet for days together. Its products have been employed medicinally in the form of extracts, infusions and wines of coca for a long time. If there is anything offensive, or any dangerous quality in the article, it certainly would have manifested itself before this time. It is not a caustic like arsenic, whose influence, when applied to a tooth, is progressive, until it ultimately destroys its internal vitality, but rather belongs to the sedative and temporary order of remedies. Before the anæsthetic effect or property of cocaïne was known, it had almost been discovered by others that it had this quality. I forget now the name of the French chemist who first discovered and made an alkaloid of coca; but, in that discovery, he almost hit upon the one that Dr. Köller recently made. He found that, when cocaïne was brought in contact with the tongue, it produced a peculiar numbness, which was a well-defined anæsthetic effect, but soon passed away. So I think we are entirely justified, aside from the lessons derived from the many surgical operations that have been performed recently under its influence, in regarding it as perfectly harmless to the human system. Its anæsthetic effect is invariably temporary.

Dr. W. GEORGE BEERS: With reference to the fact mentioned by Dr. Dwinelle as to the use made of coca leaves by the natives of Peru, I would say that it has been for seven or eight years a common custom with Canadian athletes to chew these leaves, and I myself have traveled on snow-shoes forty or fifty miles, as long ago as five or six years, without fatigue, by frequently chewing these leaves. They have a bitter taste. The effect is stimulating and tonic; it seems to be invigorating, and enables one, who is not a professional athlete, to tramp on snow-shoes twenty or thirty miles without much fatigue.

Dr. DWINELLE: I do not know whether I stated, when I was up before, that coca was regarded as a tonic of the most beneficial character, and that it was a substitute for food. I recollect reading of an instance where a person had gone sixty hours without sleep and without any other food than coca leaves. In that case, it was a substitute for sleep as well as for food. Many other similar instances are on record.

Dr. CLARK: If it is harmless, I am glad to hear it, as otherwise its use might lead to results that we should greatly regret. If it is harmless, what would be the effect upon the dentine?

Dr. DWINELLE: I do not know, except so far as has been determined by experiment. It seems to be a peculiarity of the article that a ten per cent. solution is oftentimes no more effective than a four per cent. solution. I think, as has been suggested by Dr. Atkinson, that the effect depends upon the idiosyncrasy of the patient. Some men are able to eat

with impunity a quantity of opium sufficient to kill ten other men. As the saying is: "What is one man's meat is another man's poison."—*Dental Cosmos*.

CALIFORNIA STATE DENTAL ASSOCIATION.

The sixteenth annual meeting of the California State Dental Association will be held in San Francisco, commencing the first Tuesday in August, 1885, and continuing five days.

The following are the officers:

A. Warner, D. D. S., President; W. F. Griswold, Vice-President; S. E. Goe, D. D. S., Secretary; H. E. Knox, D. D. S., Corresponding Secretary; S. E. Knowles, M. D., D. D. S., Treasurer; J. A. W. Lundborg, Librarian.

IOWA STATE DENTAL SOCIETY.

The twenty-third annual meeting of the Iowa State Dental Society will convene in Des Moines, on the first Tuesday in May, continuing four days. This meeting is expected to be one of the best in the history of the society. A cordial invitation is extended to members of the profession from other States.

Des Moines is centrally located, easy of access, and has splendid hotels and many attractions, which will make this a pleasant as well as profitable vacation for dentists.

J. B. MONFORT, *Secretary*,
Fairfield, Iowa.

ILLINOIS STATE DENTAL SOCIETY.

The twenty-first annual meeting of the Illinois State Dental Society will be held at Peoria, Illinois, commencing Tuesday, May 12, 1885, and continuing four days.

The State Board of Dental Examiners will be at the National Hotel at 10 A. M., Monday, May 11th, at which time candidates for examination must present themselves punctually. The examination will occupy until Thursday, May 14th.

J. W. WASSAL, *Secretary*,
103 State St., Chicago, Ill.

VERMONT STATE DENTAL SOCIETY.

The ninth annual meeting of the Vermont State Dental Society was held at the Van Ness House, Burlington, commencing Wednesday evening, March 18, 1885, President R. M. Chase, of Bethel, presiding.

The following officers were elected for the year ensuing: President, G. H. Swift, Manchester; first vice-president, R. W. Warner, St. Johnsbury; second vice-president, W. H. Wright, Brandon; secretary, T. Mound, Rutland; treasurer, James Lewis, Burlington; executive committee,

C. F. Lewis, Burlington; W. S. Curtis, West Randolph; J. P. Parker, Bellows Falls.

Dr. W. G. Beers, of Montreal, and Dr. F. W. Seabury, of Providence, R. I., were elected honorary members.

The next meeting will be held at Bellows Falls on the third Wednesday in March, 1886.

KANSAS STATE DENTAL ASSOCIATION

The fourteenth annual meeting of the Kansas State Dental Association will be held at Topeka, commencing Tuesday, May 5, 1885.

Every effort will be put forth to make this meeting an interesting and profitable one to the profession, and to this end every dentist in the State who is interested in the advancement of dental science is cordially invited to be present.

C. B. REED, *Secretary*,
Topeka, Kansas.

EIGHTH DISTRICT DENTAL SOCIETY.

The seventeenth Annual Meeting of the Eighth District Dental Society of the State of New-York will be held in Buffalo, on Tuesday and Wednesday, April 21st and 22d, at "The Genesee."

Although we are not able to give the titles or names of the members contributing papers for the above meeting, yet we feel assured from the energetic movements of the business committee that a programme of more than usual interest will be provided, for the pleasure and profit of all who can make it convenient to attend.

DENTAL COLLEGES.

BALTIMORE COLLEGE OF DENTAL SURGERY.

The forty-six Annual Commencement of the Baltimore College of Dental Surgery was held at the Academy of Music, Baltimore, Md., on Thursday, March, 5, 1885. The number of Matriculants was seventy-nine.

The following are the graduates:

Adair, Eugene F., . . . Georgia.	Morgan, J. C., . . . Kentucky.
Anders, H. Clay, . . . Maryland.	Phillips, Herbert, . . . Mass.
Anderson, John M., . . . Virginia.	Richardson, C. G., . . . S. Carolina.
Breland, J. A., . . . S. Carolina.	Sherman, Phineas A., . . . Massachusetts.
Chaponis, G. P., . . . France.	Smith, G. Marshall, . . . Maryland.
Cobb, Thos. L., . . . Alabama.	Sprinkle, W. B., . . . Virginia.
Comfort, Ola B., . . . Pennsylvania.	Staire, J. M., . . . Pennsylvania.
Early, E. E., . . . Maryland.	St. Amand, Claude A., . . . S. Carolina.
Gatewood, C. H., . . . Virginia.	Strait, N. A., . . . Dis. of Col.
Hafer, H. H., . . . Georgia.	Sunderlin, R. E., . . . New-York.
Hancock, J. E., . . . N. Carolina.	Swartz, J. H., . . . Pennsylvania.
Harris, M. Parke, . . . California.	Todd, Geo. S., . . . Maryland.
Hedrick, L., . . . California.	Warfield, R. C., . . . Maryland.
Jones, Samuel H., . . . New-York.	White, F. K., . . . Maryland.

UNIVERSITY OF MARYLAND DENTAL DEPARTMENT.

Annual Commencement of 1885, in connection with the seventy-Eighth Annual Session of the University, held at the Academy of Music, Baltimore, Tuesday, March 17th. Reading of Mandamus and announcement of the Graduates, by the Dean, Professor F. J. S. Gorgas. Conferring of degrees and award of prizes by Hon. S. Teackle Wallis, L.L.D., Provost of the University. Address by Prof. R. Dorsey Coale, Ph. D.

Graduates in Dental Surgery 36 in number :

Bailey, Madison A., . . . S. Carolina.	Josselyn, M. D., Eli E., . . N. Brunswick.
Beadles, E. Payson, . . . Virginia.	Kloeber, John S., . . . Virginia.
Bradford, Henry Clinton, . . Virginia.	Matthews, Augustus, . . . N. Carolina.
Brown, Claude D., . . . Virginia.	McQuown, Robert T., . . Virginia.
Carlisle, John P., . . . S. Carolina.	McQuown, William P., . . Virginia.
Carter, Joseph W., . . . Missouri.	Norwood, Wm. McIntosh, . . S. Carolina.
Comegys, Thomas M., . . Tennessee.	Parker, Will W., . . . Minnesota.
Cooke, Frank J., . . . Texas.	Pitts, Henry Clay, . . . N. Carolina.
Dorset, Willie Edward, . . Virginia.	Perkins, Capers D., . . Georgia.
Fournier, Jr., Joseph, . . New-York,	Ranson, Jr., James M., . . West Virginia.
Groshans, Ferdinand, . . Maryland.	Rutledge, Brooks, . . . S. Carolina.
Hebbel, Charles W., . . Maryland.	Schaer, Charles T., . . Maryland.
Helm, John W., . . . Maryland.	Trapp, Wm. Sherman, . . Pennsylvania.
Hill, Charles E., . . . Australia.	Twitchell, Fred. A., . . Minnesota.
Houglund, Ulysses S., . . Indiana.	Wangemann, Albert, . . Germany.
Howland, Clarence H., . . Dist. of Col.	Welch, Floyd J., . . . Virginia.
Howlett, A. Hersey, . . . Pennsylvania.	Wegge, William F., . . Wisconsin.
Hundley, Peyton, . . . Virginia.	Wood, Frank Le Roy, . . Maine.

No. of Matriculates for Session of 1884-'85 — 74.

DR. LEOPOLD DAMROSCH, the well-known musical leader, died at his residence, No. 160 East Forty-sixth Street, New-York, at 2.15 o'clock P. M., Sunday, February 15, 1885. The news of the death came as a sudden shock upon the entire musical world, for, though the leader had been confined to his house for nearly a week past, there was not the slightest expectation of fatal result. On Monday night, February 9th, he occupied his place at the head of the orchestra, while the opera of "Lohengrin" was given at the Metropolitan Opera House. On Tuesday he was busy at the hall of the Young Men's Christian Association, in Twenty-third Street, conducting a rehearsal of the Oratorio Society for the concert which had been set for the following Thursday evening. During the rehearsal he was attacked by a chill so severe that he was compelled to lay down his baton and hurry home in a carriage, from which attack he did not recover.

We doubt very much if another director can be found to take the place of the departed who will be possessed of the abilities, combined with the energy, for which the late Dr. Damrosch was noted.

Editor Dental Advertiser :

I have before me two pamphlets, one entitled *Mayo's Compound Vegetable Anæsthetic*, discovered by Dr. U. K. Mayo, April, 1883, the other, entitled *Second Edition*. The *Vegetable Anæsthetic* * * * discovered by Dr. U. K. Mayo, 1883.

In the first is a statement over the signature of Dr. Wm. H. Thorndike, dated August 15, 1883, as follows :

This certifies that I removed from the back of Mr. J. B. Moore a tumor, weighing two pounds and three quarters.

It was situated over the left Scapula. The time occupied in removing it, and in dressing the wound, was twenty-two minutes. The patient was insensible during the whole operation, and came out from the influence of the anæsthetic speedily and perfectly, without nausea or any ill effects.

The agent used was prepared by Dr. Mayo, the dentist, who claims that it is a new discovery of his own.

WM. H. THORNDIKE, M. D., 92 Boylston Street.

In the *Second Edition* distributed since Dr. Thorndike's death, I find the following statement over the name of Dr. Thorndike :

BOSTON, August 15, 1883.

This certifies that I removed in the back of Mr. J. D. Moore, a tumor, weighing two pounds and three quarters.

It was situated over the left Scapula. The time occupied in removing it, and in dressing the wound, was twenty-two minutes. The patient was insensible during the whole operation, and came out from the influence of the anæsthetic speedily and perfectly, without nausea or any ill effects.

The agent used was prepared by Dr. U. K. Mayo, the dentist, who claims that it is a new discovery of his own.

I consider this anæsthetic the safest the world has yet seen.

WM. H. THORNDIKE, M. D., 92 Boylston Street.

Both of these statements bear the same date, August 15, 1883, and both refer to the same operation.

It will be seen that the certificate as printed in the first edition is a simple statement of what occurred at the time of the operation but expresses no opinion of the value of Mayo's Gas.

In the second edition of Dr. Thorndike's statement besides unimportant verbal changes we find the following added :

" I consider this anæsthetic the safest the world has yet seen."

To those who knew Dr. Thorndike, even by reputation, that he should make such a declaration in regard to the safety of this gas, based on a single experiment, is beyond belief, and the only inference possible is that some one interested in the sale of the gas has been dishonest enough to make the change shown in Dr. Thorndike's statement, relying upon the fact that he is not living to dispute the falsehood. It will be apparent to the reader that the "Statement" as first printed was very care-

fully prepared and contained nothing of much value to proprietors of the gas, and nothing inconsistent with the exactness of expression to be expected from a gentlemen so eminent in the profession as was Dr. W. H. Thorndike.

As printed in the second edition the added line contains the strongest possible expression of approval of this gas such as no one but the merest charlatan would give on the test of a single case.

In this communication I have not entered into any discussion of the merits of different anæsthetics. But it is proper that the attention of the dental profession should be called to this statement that it may not be misled by the fraudulent use of a name held in such high honor as that of Dr. W. H. Thorndike. X.

In reviewing *Caulks' Dental Annual*, the *Journal of the British Dental Association* says:

“In one particular, we believe the editor is mistaken, or at least premature. Referring to the International Medical Congress to be held at Washington next year, he says there is to be a Section for Diseases of the Teeth (which is not yet actually settled, though we believe it is scarcely in doubt), and also that all who hold the degrees of D.D.S., D.M.D., M.D.S., etc., will be eligible as members. Now, as the arrangements are being carried out under the auspices of the American Medical Association, and as this body recognizes none but medical degrees, a special grace will be required to allow of the admission of those holding only dental diplomas, and we understand that such a proposal will not improbably meet with some, perhaps a good deal of opposition. Hence, it is scarcely safe to take the point as gained.”

DR. JOHN BUCHANAN, the dean of the Pine-Street Eclectic Medical College of Philadelphia, who became notorious some time since for traffic in fraudulent diplomas, has again been arrested on the charge that, during the year 1884, he made, signed, uttered and published written instruments purporting to be diplomas of certain medical institutions, to the prejudice of others' rights, and with intent to defraud. He was committed, in default of two thousand dollars bail, on the charges of conspiracy and forgery.

MISCELLANEOUS NOTES.

Dr. Bogue, at a recent meeting of the New-York Odontological Society, said: “I must confess my disappointment when I hear gentlemen of the Odontological Society speak of squeezing their amalgam, and I am not surprised that any gentleman who manipulates his amalgam this way should find it utterly unreliable.

“It is not much more than a month since one of my professional brethren said to me: ‘What do you mean by weighing the component parts of your amalgam? I could not

spend the time; how do you do it?' Now, I supposed that every member of this Society knew a Fletcher Balance as well as I know a water jug. This gentleman did not. I showed him how to use it, and he acknowledged it was a good thing."

The following in regard to Japanese dentistry may be taken with several grains of distilled doubt: The Japanese dentist does not frighten his patient with an array of steel instruments. All of his operations in tooth-drawing are performed by the thumb and forefinger of one hand. The skill necessary to do this is only acquired after long practice, but once it is obtained, the operator is able to extract half a dozen teeth in about thirty seconds, without once removing his fingers from the patient's mouth. The dentist's education commences with the pulling out of pegs which have been driven into an oak plank with a mallet. A writer in the *Union Medicale* says that no human jaw can resist the delicate but powerful manipulation of the Japanese dentist.

Cholera has, for the present, practically disappeared from Europe, the Italian and French cities being reported free, and there being no evidence of its extension to English cities. Smallpox is, however, very bad in London.

It appears that the accident which happened to Dr. Divers, principal of the Imperial College of Engineering, Tokio, was caused by a bottle containing perchloride of phosphorus. This had been used for some years as a sample, and the stopper being fast, Dr. Divers was warming it, when the bottle disappeared as dust and the contents as gas. It is supposed that the sample, being old, had decomposed. Dr. Divers was seriously injured in one eye, and wishes the facts to be known, in order that they may act as a warning in connection with perchloride of phosphorus.

He is a wise man who is able to see himself as he is seen; and a successful one, who is able and willing to adapt himself to surrounding circumstances, making the most of himself by appropriating these advantages.—*Dr. J. H. Hanaford.*

Prineville has a young lady dentist. Recently a lovely young man came to her office to have a tooth filled. She was captured. Under pretense that the job required it she made him come daily. During his last visit, while under the influence of ether, she sent for a clergyman and was married to him. When the young man revived he said he was already married, and now there is a broken-hearted dentist.—*Pendleton East Oregonian.*

BOOK NOTICES.

THE PRINCIPLES AND PRACTICE OF DENTISTRY, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery and Mechanism. By Chapin A. Harris, M. D., D. D. S. Eleventh Edition. Revised and Edited by Ferdinand J. S. Gorgas, A. M., M. D., D. D. S. With two full-page plates and seven hundred and forty-four other illustrations.

This is a new edition of a well-known standard work, which has, however, been much enlarged and to a considerable extent re-written. The present revision has been done in a thorough manner by Prof. F. J. S. Gorgas, who has been unsparing in excisions and judicious in the addition of new matter, to harmonize this work with the many recent improvements and developments in the science of dentistry. Modern examples of practice have been freely introduced and fully illustrated—without giving the book the appearance of a dental catalogue—and obsolete theories and processes eliminated. In short, this Eleventh Edition of "Harris" is a credit to both the present editor and the profession.

P. Blakiston, Son & Co., of 1012 Walnut Street, Philadelphia, Pa., have commenced the publication of a new series of Medical and Surgical Books. It is proposed to issue a series of compact, practical books on the various branches of Medicine, Surgery, and Gynæcology. The volumes will be prepared by authors of known capability, who have made special studies of the subjects upon which they write. It will be the special aim of each writer to give the latest information in the most concise manner consistent with usefulness and practicability. The three great questions of DIAGNOSIS, PROGNOSIS, AND TREATMENT will be especially borne in mind and worked out to the best advantage, so that the most important points may be caught at once by the reader.

The following volumes are now ready, handsomely bound in red cloth:

BODILY DEFORMITIES AND THEIR TREATMENT. A Hand-book of Practical Orthopædics. By H. A. Reeves, F. R. C. S., Senior Assistant Surgeon and Teacher of Practical Surgery at the London Hospital, Surgeon to the Royal Orthopædic Hospital, etc. 12mo. With about 228 illustrations. 460 pages. Cloth. \$2.25

DENTAL SURGERY FOR GENERAL PRACTITIONERS AND STUDENTS OF MEDICINE. Including the Extraction of Teeth. By Ashley W. Barrett, M. D., M. R. C. S., Eng., Surgeon-Dentist to and Lecturer on Dental Surgery and Pathology in the Medical School of the London Hospital. 12mo. Illustrated. Cloth. \$1.00.

ZAHNARZTLICHER ALMANACH FOR 1885. Containing lists of Dentists in actual practice in Prussia, Austria, and Hungary. By Adolph Peterman. Frankfurt-am-Main. Sixth year.

We have had occasion before to notice this admirable publication. The issue for 1885 is up to the usual high standard, and reflects credit on the enterprising compiler. The steel portraits are the finest we have ever seen.

BOOKS RECEIVED.

BABYHOOD. Devoted exclusively to the care of Infants and Young Children, and the general interests of the Nursery. Leroy M. Yale, M. D., Medical Editor. Marion Harland, Editor of the Department Relating to General Nursery Routine. Published at 18 Spruce Street, New-York. Price, \$1.50 a year.

THE BOOK-WORM. Containing entertaining selections from popular authors. New-York: John B. Alden, 393 Pearl Street.

THE LIBRARY MAGAZINE. Monthly. New-York: John B. Alden, 393 Pearl Street. Price, \$1.50 a year.

REPORT OF COMMITTEE ON SCHOOL HYGIENE IN TENNESSEE. By Daniel T. Wright, M. D., of Clarksville, Tenn.

A VISIT TO THE DENTIST. By C. S. Stockton, D. D. S., Newark, N. J.

ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE NEW-YORK STATE REFORMATORY, at Elmira, for the year ending September 30, 1884.

THE OLEATES. Further investigation into their nature and action. Introduction to a discussion in the Section of Pharmacology and Therapeutics, at the fifty-second annual meeting of the British Medical Association, held at Belfast, July 30, 1884. By John V. Shoemaker, A. M., M. D., Lecturer on Dermatology at the Jefferson Medical College, Physician to the Philadelphia Hospital for Skin Diseases, etc., etc. Philadelphia: 1885.

THE TREATMENT OF DISEASES OF THE SKIN BY NOVEL MEANS AND METHODS. A paper read before the Section of Dermatology and Syphilis, at the meeting of the International Medical Congress at Copenhagen, Denmark, August 12, 1884. By John V. Shoemaker, A. M., M. D., Lecturer on Dermatology at the Jefferson Medical College, and Instructor thereon in the Post-Graduate Course of that Institution, Physician to the Philadelphia Hospital for Skin Diseases, etc. Philadelphia: 1884.

THE NEW LOCAL ANÆSTHETIC: HYDROCHLORATE OF COCAINE AND ETHERIZATION BY THE RECTUM. By Laurence Turnbull, M. D., Ph. G., and Surgeon to Jefferson Medical College Hospital, Philadelphia; author of a Manual of Anæsthetic Agents, etc., etc. Philadelphia: P. Blakiston & Co.

REPORT ON THE DISEASES OF THE EAR IN LOCOMOTIVE AND OTHER ENGINEERS, FIREMEN AND CONDUCTORS, WHICH MAY ENDANGER THE LIVES OF THE TRAVELING PUBLIC. By Laurence Turnbull, M. D., Philadelphia, Aural Surgeon to Jefferson Medical College Hospital, and Instructor in Otology, Post-Graduate Course, Jefferson Medical College, Philadelphia.

LETTERS TO A MOTHER FROM A MOTHER ON THE FORMATION, GROWTH AND CARE OF THE TEETH. By the wife of a dentist, Mrs. M. W. J., Philadelphia, Pa.: T. B. Welch & Son. 1885. Reprint from *Southern Dental Journal*.

TYPHOID FEVER AND LOW WATER IN WELLS. By Henry B. Baker, M. D., Lansing, Mich.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION, at the Twenty-fourth Annual Session, held at Saratoga Springs, N. Y., August, 1884. Philadelphia: The S. S. White Dental Manufacturing Co.

AMENDED CONSTITUTION OF THE AMERICAN DENTAL ASSOCIATION, adopted at Saratoga, August, 1869, with amendments up to and including the session of 1884, and Code of Dental Ethics. Philadelphia: The S. S. White Dental Manufacturing Co.

RULES AND PRELIMINARY ORGANIZATION of the Ninth Session of the International Medical Congress, to be held in Washington, D. C., in 1887. To be obtained of John S. Billings, M. D., Washington, D. C.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

309,709—Dec. 23, 1884.—DENTAL SEPARATING WEDGE.—David Genese, Baltimore, Md.

310,099—Dec. 30, 1884.—ELECTRO MAGNETIC DENTAL PLUGGER.—James H. Van Ness and Mortimer A. Bland, Charlotte, N. C.

310,234—Jan. 6, 1885.—DENTAL PLATE.—Joseph Spyer and Robert S. Ingalls, Newton, Kansas.

310,294—Jan. 6, 1885.—ARTIFICIAL TOOTH CROWN.—Marshall L. Logan, Tyrone, Pa.

310,407—Jan. 6, 1885.—DENTAL IMPRESSION CUP.—Amaziah Garner, Lynchburg, Ohio.

310,467—Jan. 6, 1885.—DENTAL DRILL.—Robert M. Ross, Utica, N. Y.

310,849—Jan. 13, 1885.—ARTIFICIAL TOOTH.—James A. Priest, Utica, N. Y.

- 311,314—Jan. 27, 1885.—INHALER.—Cornelius B. Harness, London, England.
 311,908—Feb. 10, 1885.—INHALER.—Uriel K. Mayo, Boston, Mass.
 312,092—Feb. 10, 1885.—DENTAL FOIL.—Thomas Cogswell, Wellesley Hills, Mass.
 312,435—Feb. 17, 1885.—GAS MIXER FOR INHALER.—Luther M. Davis, Walla Walla, Wash.
 312,771—Feb. 24, 1885.—INHALER.—Geo. B. Snow, Buffalo, N. Y.
 312,818—Feb. 24, 1885.—DENTAL PLUGGER.—John F. Clement, Philadelphia, Pa.
 313,382—March 3, 1885.—DENTAL TOOL RACK AND CASE.—Albert A. Stillman, Syracuse, N. Y.
 313,411—March 3, 1885.—DENTAL ENGINE.—Alonzo W. Eldredge, Big Rapids, Mich.
 313,434—March 3, 1885.—ARTIFICIAL DENTURE.—James E. Low, Chicago, Ill.
 313,737—March 10, 1885.—ARTIFICIAL TOOTH CROWN.—Woodbury S. How, Philadelphia, Pa.
 313,738—March 10, 1885.—ARTIFICIAL TOOTH CROWN.—Woodbury S. How, Philadelphia, Pa.
 313,745—March 10, 1885.—INHALER.—Amos M. Long, Monroe, Mich.
 313,781—March 10, 1885.—HEAD REST FOR CHAIRS.—Eli T. Starr and Levi Teal, Philadelphia, Pa.
 313,782—March 10, 1885.—ELECTRIC MOUTH AND THROAT ILLUMINATOR.—Eli T. Starr, Philadelphia, Pa.
 313,783—March 10, 1885.—ELECTRIC ILLUMINATOR FOR THE MOUTH AND SIMILAR PURPOSES.—Eli T. Starr, Philadelphia, Pa.

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- One Shell-Handle Single Blade Pocket Lancet. 50 cents.

DENTAL BOOKS.

- One Cole's Deformities of the Mouth. Second edition. \$1.50.
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 One Tyson's Cell Doctrine. \$1.50.
 One Huxley Elementary Lessons in Physiology. \$1.00.
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MISCELLANEOUS.

Wood Polishing Points. Manufactured by the patentee, Dr. Southworth; 100 in a box. Price, \$1.25; will sell for 50c. per box.

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Aluminum Solder, per ½ ounce. 50 cents.

One Lot Bur Gauges, nicely Nickle-plated. Each, 25 cents.

Plate Tooth Holder, to hold Teeth while grinding. Each, 15 cents.

Blodgett's Tooth Wash, per dozen. 50 cents.

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One Spencer & Crocker's Bracket, Japanned. Complete with table. Shop-worn. \$9.00.

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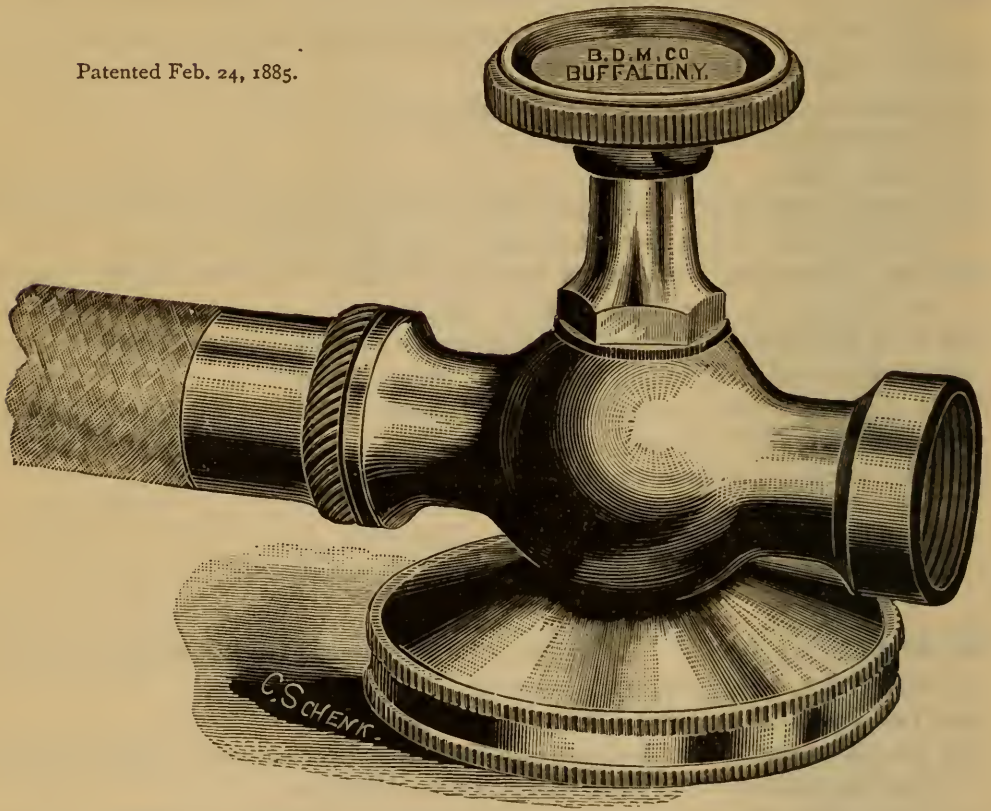
One Wall Cabinet, Codman & Shurtleff's make, in fair condition, \$12.00.

One Archer Chair, with separate Foot-stool, Crane and Table, Spittoon attached, and Codman & Shurtleff Saliva Ejector, all for \$25.00. Chair needs re-upholstering to put it in perfect order.

CHLOROFORM MIXER

For Attachment to Nitrous Oxide Apparatus.

Patented Feb. 24, 1885.



A New Appliance for Administering Mixed Anæsthetics.

Nitrous oxide gas, as an anæsthetic, is often objectionable from the quickness with which its effects pass off. Full anæsthesia is easily produced, but the patient regains consciousness before the operation is completed. So, if a number of teeth are to be extracted, the gas is of necessity administered more than once, and often several times.

It has been discovered, however, that a mixture with the gas, of the vapor of a few drops of Chloroform—so little, in fact, as to be incapable of itself of producing any marked effect upon the system—will so intensify and prolong the anæsthetic effect of the gas, that, in most cases, one administration will serve for the extraction of several teeth; at least two or three times as many as it would be possible to extract if the gas were given pure.

The Buffalo Dental Manufacturing Co. offer to the Dental Profession, as an adjunct to the Lewis Gasometer, an apparatus for the purpose alluded to above, which is believed to present some new and valuable features as compared to those heretofore used. The Chloroform is confined in a receptacle below the gas passage, which is closed by a screw valve. A stem, covered by a fibrous sheath, extends downward from the valve into the Chloroform. When the mixture is to be made, the valve is loosened by the wheel-handle,

and drawn upwards, raising with it the covered stem, which brings with it a certain amount of chloroform into the gas passage; where it is exposed to the current of gas as it passes to the inhaler. A small piston closes the passage to the chloroform reservoir as the handle is raised, cutting off the escape of vapor. With this apparatus the mixture may be made or withheld, and more or less chloroform given, as the judgment of the operator may dictate. The Chloroform vapor does not pass into the gasometer, but directly to the patient, and by giving it when the patient is already partially under the influence of the gas, the effect of both is intensified, anæsthesia is prolonged, and a notable saving is made in the quantity of gas administered.

In making the mixture for this purpose, by means of the so-called "Vitalized Air" apparatus, the usual practice has been to place the desired quantity of Chloroform for the mixture in the passage from the *gas-cylinder to the gasometer or gas-bag*, the mixture being made as the gas is drawn from the cylinder. It will be seen at once that the Chloroform vapor will constitute but a very small percentage of the mixture, and that the effect of that first given will pass off, at least partially, before anæsthesia is fully produced. It is also evident that the question whether the pure gas or the mixture is to be used must be settled at the time the gas is drawn from the cylinder: and when the mixture is made, its presence in the gas-holder precludes the use of pure gas, if circumstances should favor it. While on the other hand, the quantity of chloroform in the mixture cannot well be increased, even if it should be desirable to increase it.

This apparatus can be applied to any style of gasometer or bag.

DIRECTIONS.

Screw the outlet cock on to the gasometer, then screw the mixer on to the cock. If it is necessary, shave down the leather washers so that the mixer will stand upright, with the hand-wheel on top. Unscrew the reservoir and place in it enough chloroform to nearly, but not quite, fill it; then replace it, slacking off and raising the milled screw-head handle on top of the mixer. After the reservoir is in place, screw the handle down again. The chloroform is now securely retained in the reservoir. When the mixture is wanted (which is after the patient has taken enough gas to be partially under its influence), unscrew and raise the milled handle. This will place a few drops of chloroform in the gas passage, where it will evaporate and mix with the gas as it passes to the patient. If more chloroform is wanted, press down the finger piece which surmounts the milled handle, and again raise the handle.

When the apparatus is not in use, the milled handle should always be screwed down to prevent the evaporation of the chloroform. The reservoir will contain about one ounce of chloroform.

PRICE.

B. D. M. Co.'s Chloroform Mixer, for the Lewis Gasometer,	\$6.00
Expense of adaptation to other styles of gas apparatus,	Extra.

MANUFACTURED ONLY BY

THE BUFFALO DENTAL MANUFACTURING CO.

Owing to the Constantly Increasing Demand

FOR



AND WITH

NEW FACILITIES FOR MANUFACTURING

I am enabled to announce the following

GREAT REDUCTION

In Prices, which hereafter will be

4 cts. per Gallon in 100 Gallon Cylinders.

3 $\frac{1}{2}$ “ “ 500 “ “

COMPLETE GAS APPARATUS OUTFITS.

	FORMER PRICES.		REDUCED TO
Surgeon's Case, with 4½ gal. gas bag and 100 gal. Cylinder filled,	\$42.00	\$40.00	\$39.00
Surgeon's Case, with 7 gal. gas bag and 100 gal. Cylinder filled,	44.00	42.00	41.00
Unvers. Tripod with 4½ gal. gas bag and 100 gal. Cylinder filled,	36.00	34.00	33.00
Unvers. Tripod with 7 gal. gas bag and 100 gal. Cylinder filled,	38.00	36.00	35.00

SEPARATE PARTS.

Cylinder containing 100 gal. gas, . .	16.00	15.00	14.00
“ “ 500 “ . .	44.00	42.00	39.50
Re-filling 100 gal. Cylinder,	6.00	5.00	4.00
“ 500 “ per gal. 3½ cts.	22.50	20.00	17.50

I continue to REFILL Cylinders of ALL
MAKES, as well as to GUARANTEE the KEY-
STONE VALVE, and the WEIGHTS of the
Cylinders as marked ON THE LABELS.

Dentists having EXPERIENCED TROUBLE
and LOSS OF GAS through FAULTY valves,
will find it to their ADVANTAGE to have them
REPLACED by the KEYSTONE valve at a
nominal cost.

PHILADELPHIA, PA., April 1, 1885.

—♦♦—
H. D. JUSTI,

— DENTAL DEPOT, —

No. 516 Arch Street, - Philadelphia, Pa.

BRANCH: 66 E. MADISON ST., CHICAGO, ILL.

Sole Agent for the Keystone Gas Regenerating Co.

KING'S OCCIDENTAL AMALGAM.

PRICE REDUCED TO \$3.00 PER OZ.

This Amalgam has been before the profession in Ohio and Western Pennsylvania for some years, and all who have used or tested it agree that it has merits over any other Amalgam in the market.

The process of manufacture differs from that of other Amalgams, and

BY A NEW INVENTION

Dr. King is enabled to obtain better results, both in regard to COLOR, SHRINKAGE and EXPANSION, than is obtained in any other alloy in the market.

Test for color consists of sixty grains of Sulphuret of Potassa, dissolved in one ounce of water. Amalgam plugs to be left in this solution twenty-four hours or more. The Occidental will remain bright after this test, and we know of no other Amalgam, at even double the price, but that will discolor. All who would use the best should buy

KING'S OCCIDENTAL AMALGAM.

TESTIMONIALS.

I believe the Occidental Amalgam has *no equal* in the market to-day.

PITTSBURGH, September 22, 1881.

GALE FRENCH, D. D. S.

I think the Occidental Amalgam superior to any I have ever used.

PITTSBURGH, September 22, 1881.

J. G. TEMPLETON, D. D. S.

ASK YOUR DENTAL DEPOT FOR IT, OR SEND TO

**RANSOM & RANDOLPH, Wholesale Agents,
83 JEFFERSON STREET, TOLEDO, OHIO.**

FOR SALE BY BUFFALO DENTAL MANUFACTURING CO.

Give us your Subscription now for 1885.

OHIO STATE JOURNAL OF DENTAL SCIENCE

A Monthly Journal of 48 to 56 pages, for Two Dollars per Year.

Editor: GEO. WATT, M. D., D. D. S., Xenia, Ohio.

PUBLISHED BY

**RANSOM & RANDOLPH,
TOLEDO, OHIO.**

[ja85-1y.]

Subscriptions received by BUFFALO DENTAL MANUFACTURING CO.

THE LEWIS ABSCESS SYRINGE

FOR TREATMENT OF

Alveolar Abscess, Pyorrhœa Alveolaris, etc.

This syringe is so constructed that it can be filled and operated with one hand: The movement of the piston is but $\frac{3}{8}$ of an inch, thereby taking up the desired quantity of fluid and no more.

The capacity of the syringe is so small (a few drops only) that it obviates the annoyance of cauterizing the inside of the mouth when using creosote or other strong medicines.

By using a drill of the same size as the syringe point its whole contents can be discharged into the pulp canal and through the apical foramen and into the fistulous sinus, thoroughly medicating the diseased tract without allowing any of the preparation used to escape into the mouth to cause annoyance to the patient.

In the same manner a few drops of the appropriate remedy may be placed in the pocket between the root and gum in a case of pyorrhœa alveolaris.

PRICE.

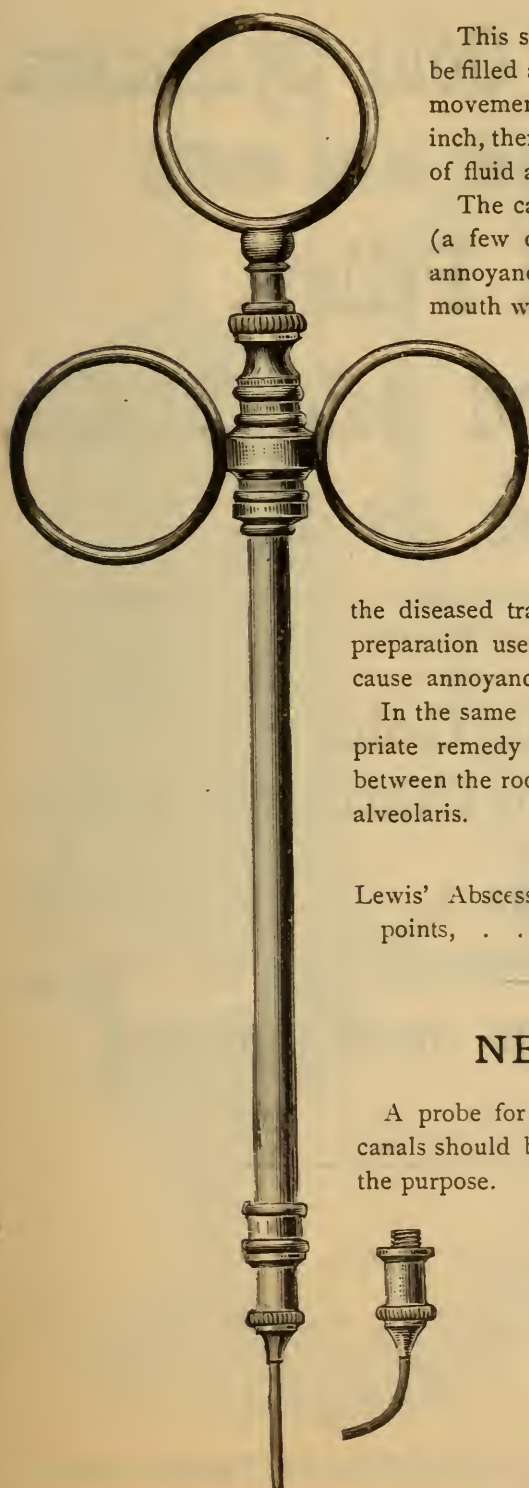
Lewis' Abscess Syringe, with two gold points, \$3.50

NEW PROBE.

A probe for introducing dressings into root canals should be of the right size and temper for the purpose. It should be elastic, yet not so hard as to break, and fine enough to carry cotton to the end of the canal. The one illustrated is made of piano wire, which combines elasticity and toughness in a surprising degree.

PRICE.

Piano Wire Probe, each, . 25 cents.



R. S. WILLIAMS,

MANUFACTURER OF

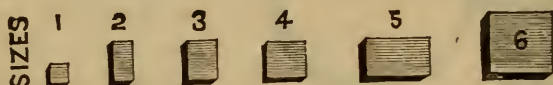
Standard Gold Foil,

Standard Gold Cylinders,



Standard Gold Pellets,

Standard Gold Blocks,



Over one hundred and fifty varieties kept in stock, each differing in quality, size or style.

Standard Electric Gold,

Gold and Platinum Folds.

AMALGAM ALLOY No. 1,

STANDARD GUTTA PERCHA BLOCKS, for Fillings,

STANDARD DENTAL RUBBER,

ARE THE BEST.

Send for Price List and Descriptive Circular.

621 & 623 Sixth Ave., NEW-YORK, N. Y.

(Between 36th and 37th Sts.)

FOR SALE BY BUFFALO DENTAL MANUFACTURING CO.

THE LEWIS NITROUS OXIDE GASOMETER

This Gasometer is believed to
be the

Best and Most Convenient
for the price yet produced.

Made of best Galvanized Iron,
highly and artistically orna-
mented. All bright parts
nickel-plated.

IT IS FITTED FOR EITHER A 100
OR 500 GALLON CYLINDER.

Contains an effective Water Seal

PRICES.

No. 1, Lewis Gasometer, \$30.00

No. 2, Lewis Gasometer, \$25.00

Boxing included.

The No. 1 and No. 2 are iden-
tical in construction, the differ-
ence being in ornamentation.

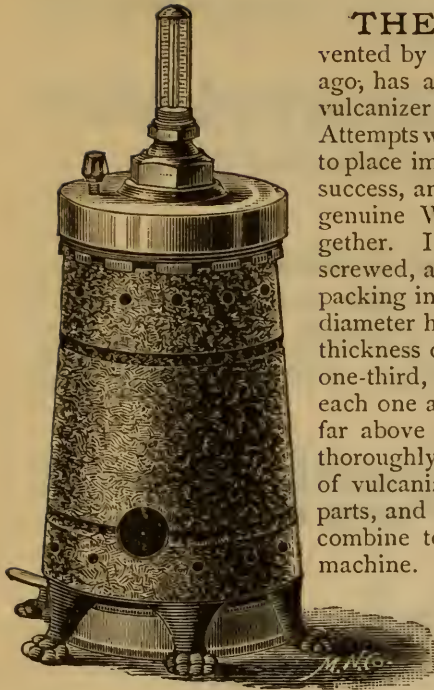
The above prices are for the
Gasometer and Stand alone. Full
outfits furnished, including inhalers
of any of the usual styles. Circulars
will be furnished on application, giv-
ing full details of different outfits,
and their prices.

Prices given for any selection of
apparatus desired. Gas in cylinders
furnished in any quantity.

FOR SALE BY ALL DEALERS
IN DENTAL GOODS.

Manufactured only by Buffalo Dental M'f'g Co., Buffalo, N. Y.

Dental·Vulcanizers.



THE WHITNEY VULCANIZER, invented by the late Dr. B. T. Whitney more than twenty-five years ago, has always had the name of being the most simple form of vulcanizer in existence, and it has always met with a ready sale. Attempts which have been made from time to time by different parties to place imitations of it upon the market, have met with very limited success, and it is safe to say that there are to-day more of the genuine Whitney Vulcanizers in use than of all other kinds together. It consists of a copper pot on to which a brass head is screwed, a steam-tight joint being made by means of a rubber-packing in the head, which bears upon the edge of the pot. Its diameter has recently been enlarged from $3\frac{3}{8}$ to 4 inches, and the thickness of copper used in making it has been increased about one-third, thus insuring ample strength. Careful tests are given to each one as it is made, and each is subjected to a pressure of steam far above that which it should receive in use, and is afterwards thoroughly inspected. Our long experience in the manufacture of vulcanizers, the proper proportion of material in its different parts, and the accurate and careful workmanship bestowed upon it, combine to make it a strong, safe, durable and easily managed machine.

HAYES' PATENT MERCURY BATH is applied to this vulcanizer, by which the bulb of the thermometer is protected from the destructive action of the steam upon it, and one of the most frequent causes of failure of the thermometer entirely obviated. It is also

fitted with the B. D. M. Co.'s safety apparatus and safety disc, which will give way and allow the escape of the steam, if the temperature of the vulcanizer should be allowed, by forgetfulness or oversight, to rise to a dangerous extent. The pressure being thus relieved, a disastrous explosion becomes impossible.

The Whitney Vulcanizer is closed by means of two wrenches, the "round" and "straight" wrenches, (Nos. 3 and 8). These form the most convenient means for the purpose, for the traveling dentist. For those having a regularly appointed laboratory, the bed-plate and wrench, (Figs. 9 and 10) are recommended. The bed-plate is fixed to the bench, in which a hole is cut for the reception of the vulcanizer pot. These are furnished with the vulcanizer instead of the round and straight wrench, Nos. 3 and 8, without any advance in price. If a hole in the bench is not practicable, the Raised Bed-plate (No. 16) will be furnished at an advance in price of 75 cents.

The heat is supplied by either gas, alcohol or kerosene. Apparatus for burning either is furnished as required.

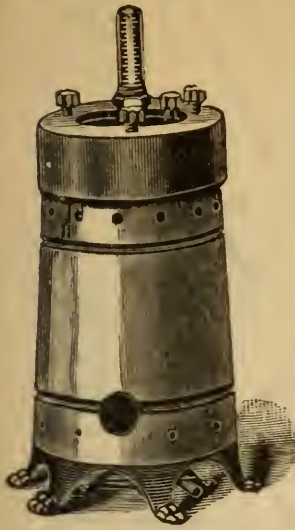
We have succeeded in effecting arrangements with the manufacturers by which we are enabled to furnish a **SPECIAL PATTERN OF KEROSENE STOVE** with our vulcanizers, without the advance in price heretofore made in furnishing the Union Stove. This stove has a four inch wick and will be found an efficient heater, much preferable to those heretofore used. This stove will always be furnished with this vulcanizer, unless other heating apparatus is specified. The Union Stove, if ordered, will be \$1.25 extra, as before.

PRICES.

No. 1, Vulcanizer, for one flask, Gas, Alcohol or Kerosene,	\$12.00
No. 2, Vulcanizer, for two flasks, Gas, Alcohol or Kerosene,	14.00
No. 3, Vulcanizer, for three flasks, Gas, Alcohol or Kerosene,	16.00
No. 1, Vulcanizer with Union Kerosene Stove,	13.25
No. 2, Vulcanizer with Union Kerosene Stove,	15.25
No. 3, Vulcanizer with Union Kerosene Stove,	17.25

THE HAYES VULCANIZER.—THE HAYES COPPER BOILER

consists of a copper pot, a cover containing the packing joint, and a collar, which screws upon a threaded ring which encircles the pot, and bears upon the cover to tighten the joint by means of three set-screws, which are plainly shown in the engraving. This fastening has proved to be the most substantial of any, and can be recommended as *absolutely steam-tight*.



The thermometer bulb is immersed in HAYES' PATENT MERCURY BATH, by which it is perfectly protected from the corrosive action of the steam.

Two sizes of the Hayes Copper Boiler are made, which are respectively, 4 inches and 4½ inches in diameter. The 4-inch size, which is generally employed by dentists, can be furnished to take one, two, or three flasks, as desired. The 4½-inch size is kept in stock either for two or three flasks, and can be made of extra length for special purposes.

THE IRON CLAD BOILER is made precisely like the Copper Boiler above described, excepting that the copper pot is covered by a shell of malleable iron strong enough to withstand many times the pressure of steam used in vulcanizing. It may, therefore, be safely used, notwithstanding the weakening of the copper by corrosion. It is only made of 4 inches diameter, for

Pat. Mch. 5, '61, July 8, '62, Ap. 3, '66. one, two, or three flasks.

We have succeeded in effecting arrangements with the manufacturers by which we are enabled to furnish a SPECIAL PATTERN OF KEROSENE STOVE with our vulcanizers, without the advance in price heretofore made in furnishing the Union Stove. This stove has a four inch wick and will be found an efficient heater, much preferable to those heretofore used. This stove will always be furnished with this vulcanizer, unless other heating apparatus is specified. The Union Stove, if ordered, will be extra as before, viz.: No. 1, \$1.25; No. 2, with two wicks, \$1.50.

PRICES.

No. 1, Copper, Gas, Alcohol or Kerosene,	\$12.00
No. 2, Copper, Gas, Alcohol or Kerosene,	14.00
No. 3, Copper, Gas, Alcohol or Kerosene,	16.00
No. 2, Large Vulcanizer, 4½-inch diameter,	20.00
No. 3, Large Vulcanizer, 4½-inch diameter,	22.00
With Union Kerosene Stove, extra,	1.50
No. 1, Iron Clad, Gas, Alcohol or Kerosene,	15.00
No. 2, Iron Clad, Gas, Alcohol or Kerosene,	17.00
No. 3, Iron Clad, Gas, Alcohol or Kerosene,	19.00



Patented April 3, 1866.

THE PEER VULCANIZER.—The cover is secured by three bolts, pivoted in a ring surrounding and securely brazed to the edge of the pot. As will be seen by reference to the engraving, they can be thrown out of the way when it is desired to remove the cover, by merely slackening the nuts.

Only one size of this vulcanizer is kept in stock, viz.: 3¾ inches diameter, for two flasks.

Hayes' Patent Mercury Bath is adapted to this vulcanizer, by which the liability of the thermometer to accident is much decreased. It is also supplied with the B. D. M. Co.'s safety disc apparatus.

The heat is applied by either gas, alcohol or kerosene. The B. D. M. Co.'s special pattern of kerosene stove is adapted to this vulcanizer, and will be furnished with it unless other heating apparatus is specified in the order.

PRICES.

No. 2, Peer Vulcanizer, Gas, Alcohol or Kerosene, . .	\$14.00
Union Kerosene Stove, extra,	1.25

Fletcher's Extra Plastic Amalgam,

AN ADHESIVE VARIETY OF THE PLATINUM AMALGAM, . . . \$5.00 per oz.

A smooth, extremely plastic variety, designed for use in positions where thorough plugging is a matter of difficulty. It is largely used in connection with the **Artificial Dentine** for the apparently most hopeless cases. Free from discoloration.

THE METALS USED IN FLETCHER'S AMALGAMS are reduced direct from their salts, and are chemically pure. "Commercially pure" metals are never used. They are the only alloys which are and have been, from the first, tested ingot by ingot for all necessary properties, and their uniformity absolutely guaranteed. Until the introduction of these alloys, amalgams never were tested for any properties. These

AMALGAMS

are strictly first-class, and guaranteed as represented in every particular.

Is remarkably free from discoloration if finished and polished. Produces plugs absolutely moisture tight. Does not discolor the tooth substance. Is very cleanly and agreeable to use, and may be relied upon as a thoroughly trustworthy filling material. Requires a very small proportion of mercury.

Fletcher's Platinum Amalgam,
PLATINUM AND GOLD ALLOY, \$4.80 per oz.

They were the first alloys in which the valuable properties of Platinum were utilized.

THOS. FLETCHER, F. C. S.,

Nos. 4 and 6, Museum Street,
WARRINGTON, ENGLAND.

JAMES V. LEWIS,

General Wholesale Agent for Fletcher's Filling Materials
for the United States,
No. 15, Court Street, Buffalo, N. Y.

SAMSON RUBBER

MANUFACTURED BY

EUGENE DOHERTY,

No. 444 First Street, Brooklyn, E. D., New-York.

WARRANTED TO BE

THE STRONGEST AND MOST UNIFORM RUBBER MANUFACTURED.

It is the TOUGHEST and Most Durable Rubber Made. Vulcanizes same as Ordinary Rubber.

SAMSON RUBBER.



MANUFACTURER OF ALL KINDS OF

DENTAL RUBBERS AND GUTTA PERCHAS.

PRICE LIST OF DENTAL RUBBERS AND GUTTA PERCHAS.

No. 1 Red Rubber, per lb.	\$2.25	No. 1 Red Weighted Rubber, per lb. \$4.00
No. 2 Red Rubber, per lb.	2.25	No. 2 Red Weighted Rubber, per lb. 4.00
Samson Rubber, per lb.	2.75	Black Weighted or Amalgamated
Black Rubber, per lb.	2.25	Rubber, per lb. 4.00
Flexible or Palate Rubber, per lb. .	2.75	Weighted Gutta Percha, per lb. . 4.00
Gutta Percha for Base Plates, per lb.	2.25	Adamantine Filling or Stopping, per
Vulcanite Gutta Percha, per lb. . .	3.50	oz. 4.00

NOTE.—The above Rubbers and Gutta Perchas will be furnished in pound or half-pound packages to any Dentists in the country on receipt of price, and stating that they cannot get them at the Dental Depots in or near their place of business. Circulars giving full instructions how to use all of my Rubbers and Gutta Perchas, will be found in each box or package with the article ordered

EUGENE DOHERTY,

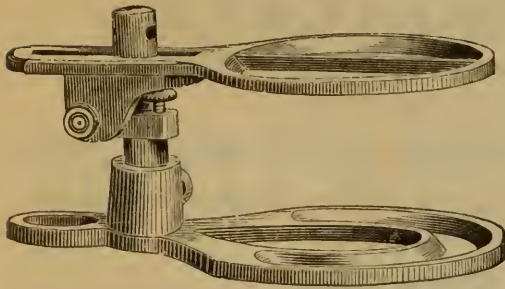
444 FIRST ST., BROOKLYN, E. D., NEW-YORK.

FOR SALE BY BUFFALO DENTAL MANUFACTURING CO.

[ja84-1y.]

Dental Articulators.

No. 4. THE SNOW & LEWIS ARTICULATOR.—

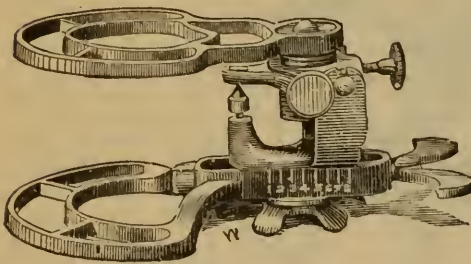


This articulator is capable of adjustment vertically by means of a sliding post and clamping screw, so as to accommodate two casts, for a full upper and lower set, or one cast, for a single set. It is made from heavy castings and all the joints are nicely fitted. The adjusting screw is secured by means of a jam-nut, so that there is no danger of losing the right length of bite, in handling the articulator.

PRICE.

Snow & Lewis Articulator, . . \$2.00

No. 5. THE HAYES ARTICULATOR.—



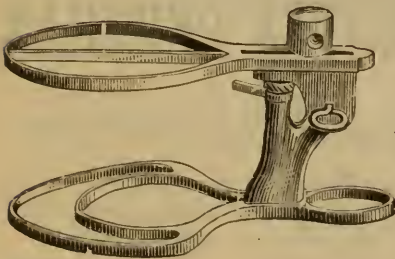
This articulator is the first one invented which dispensed with a removable pin in the joint, a part which is so easily lost or mislaid, and the absence of which causes so much annoyance.

The Hayes Articulator is capable of all the motions required in an articulator, and can be brought back to its first position, if desired, after a change, with ease and certainty. Each motion is independent, and the self-locking device which constitutes the joint makes it a very desirable implement of the kind.

PRICE.

Hayes Articulator, \$2.50

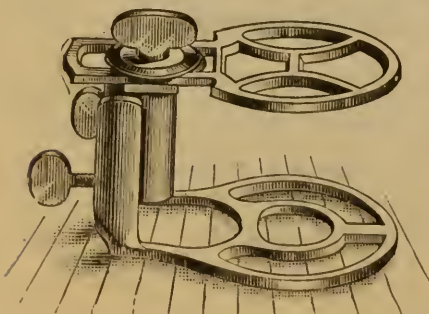
No. 6. THE B. D. M. CO.'S COMMON ARTICULATOR.—



The Buffalo Dental Manufacturing Co. offer the articulator illustrated to dentists desiring a cheap article, in the belief that it possesses some advantages over other patterns of the same price. The adjusting screw is fastened by a jam-nut which renders it secure against any alteration by handling.

PRICE.

B. D. M. Co.'s Common Articulator, . . \$1.00



No. 7. THE MONITOR ARTICULATOR.—

This is a good articulator, having all necessary movements, and made from recently improved patterns. The top is removed from the bottom by means of a spring joint.

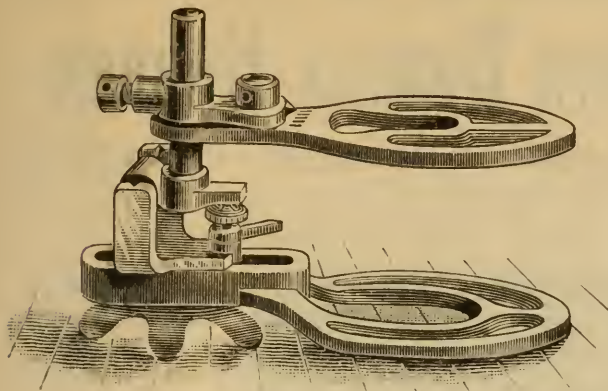
PRICES.

Plain Brass,	\$1.50
Brass, Polished,	1.75
Brass, Polished and Nickel-Plated,	2.00

BUFFALO DENTAL MANUFACTURING CO.

No. 8. INDEPENDENT MOTION ARTICULATOR.—

Designed by Theodore G. Lewis. In the construction of this articulator, the desirable points in several articulators have been combined with new devices, to produce a practical implement in every particular.



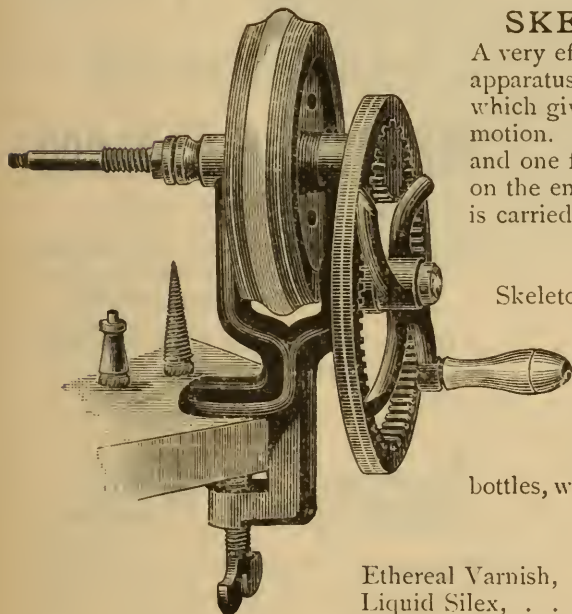
Every motion is independent. The means for correcting false positions in the bite are complete in every respect, while the range to accommodate different thicknesses of casts is ample. Substantially the same articulator has been in constant use by the designer for several years, and has been found to be as near perfection as possible.

PRICES.

Independent Motion Articulator, plain brass,	\$2.00
Independent Motion Articulator, polished and nickel-plated,	2.75

SKELETON HAND LATHE.—

A very effective and desirable form of cheap grinding apparatus. The spindle carries a heavy fly-wheel, which gives the apparatus strength and steadiness of motion. The price includes one chuck for brushes, and one for a small corundum wheel, which screw on the end of the spindle. A large corundum wheel is carried between the parting nuts on the spindle.



PRICES.

Skeleton Lathe,	\$4.50
Extra Chucks, . . . . .	.25

LIQUID PREPARATIONS

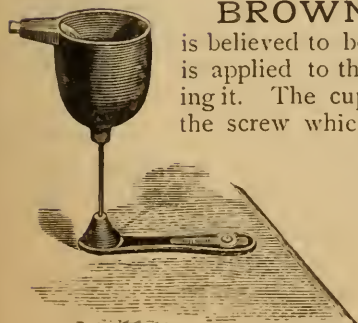
for the dental laboratory, in square two-ounce bottles, which will not upset easily. The trade supplied.

PRICES.

Ethereal Varnish, per bottle, . .	35 cents.
Liquid Silex, “ . .	25 “
Sandarac Varnish, “ . .	25 “

BROWN'S LATHE BATH.—

This entirely new device is believed to be the most perfect of its kind; the cup contains a wick, which is applied to the surface of the grinding wheel, keeping it wet without flooding it. The cup revolves on the pedestal and the latter revolves and slides on the screw which enters the bench, thus making it perfectly adjustable. It can be fitted to any lathe by cutting the rod to the proper length. When used for the first time, that part of the wick contained in the tube should be wet.



PRICE.

Brown's Lathe Bath,	50 cents.
-------------------------------	-----------

BUFFALO DENTAL MANUFACTURING CO.

SMITH'S FIFTEEN-MINUTE DENTAL RUBBER

Has become widely known and a necessity to many Dentists. It makes a strong durable plate, and is invaluable for repairing purposes.

PRICE \$3.00 per lb., 20 cts. per Sheet.

I have a large and well selected assortment of H. D. JUSTI'S and W. D. M. CO.'S ARTIFICIAL TEETH, also a full assortment of BONWILL CROWNS, GOLDS, AMALGAMS, RUBBERS, FORCEPS and miscellaneous DENTAL GOODS.

Orders filled with *care* and *promptness*.

Address,

FRED W. SMITH,

DENTAL DEPOT,

BINGHAMTON, N. Y.

P. O. BOX 262.
a-85-1y.

Send for
NEW CATALOGUE
OF
Dental Specialties.
BUFFALO
Dental Manufacturing
COMPANY.

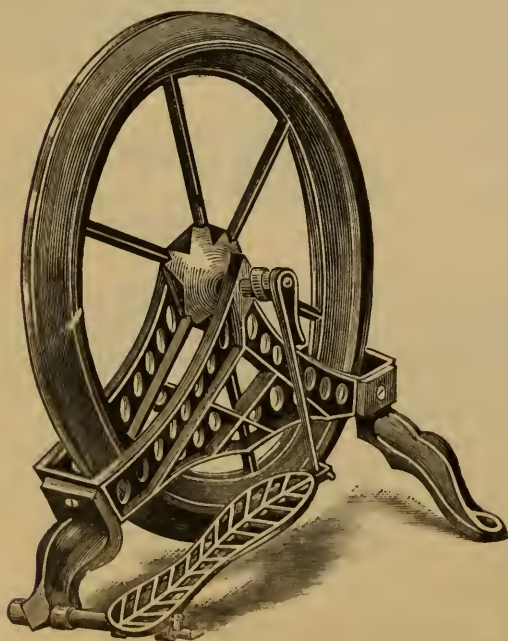
DO YOU KNOW — THAT — LORILLARD'S Climax Plug Tobacco

WITH RED TIN TAG,

Rose Leaf Fine Cut Chewing,
Navy Clippings, and Black,
Brown and Yellow Snuffs

Are the *BEST* and *CHEAPEST*,
QUALITY CONSIDERED?

oct-84-1y



Diamond Fly Wheel.

THIS Fly Wheel is 18 inches in diameter, with wrought iron spokes, in an iron frame, complete in itself, can be set anywhere, and runs very steady.

It has sufficient power and speed for any Dentists' Lathe Head, and is well adapted to the B. D. M. Co.'s Lathe Head.

The feet are easily detached, and all can be packed in a smaller box than any other Fly Wheel of its dimensions in the market.

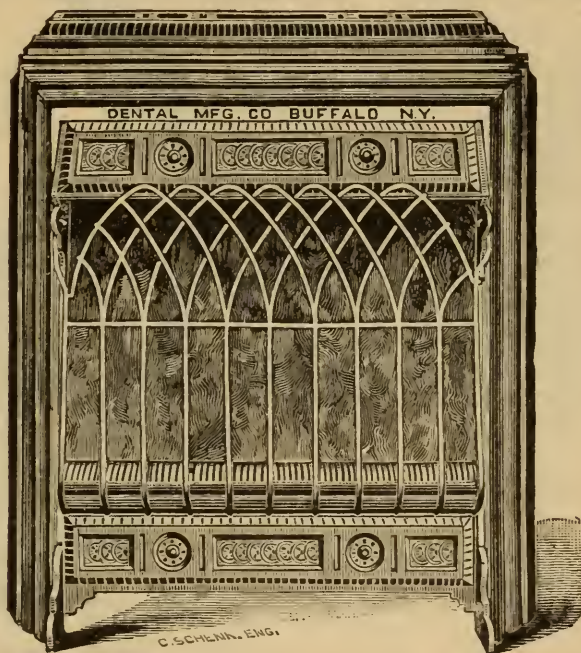
PRICE, Boxed, - - \$8.00.

FOR SALE BY THE

Buffalo Dental Manufacturing Co.

FLETCHER'S ASBESTOS FIRE

For Producing a Pleasant Radiated Heat
for Warming Apartments.



The Best Imitation of a Hard-Coal Grate Fire
YET PRODUCED.

A gas flame, from a special form of the patent radial burner, streams up against a perpendicular fire surface of Asbestos fibre, which is almost instantaneously brought to an intense heat, giving a large percentage of the full effect due to the gas burnt.

The radiant heat evolved from the Fletcher Asbestos Fire renders it peculiarly applicable as a foot warmer, to place near the chair in dental operating rooms. Its use for this purpose has been very satisfactory, and it has been highly commended. If used occasionally, and for a short time only, the products of combustion may be allowed to escape directly into the apartment; but for continuous use suitable flue connection should be made, as with all gas-heating apparatus, if it is used in small apartments without ventilation; as gas flames of any kind vitiate the air in which they are burned.

Gas consumption, about fifteen feet per hour.

PRICE.

Fletcher's Asbestos Fire,	\$ 8.00
With Front, Sides, and Top Nickel Plated,	13.00

MANUFACTURED ONLY BY

THE BUFFALO DENTAL MANUFACTURING CO.

REDUCTION IN PRICE.

FLETCHER'S GUTTA PERCHA HYDRAULIC CEMENT.

It is well known that gutta percha is not absolutely water-tight through its substance. A trace of moisture penetrates in time through all. I have utilized this property by mixing with the gutta percha, instead of the usual inert powders, a strong hydraulic cement, which gradually hardens throughout the substance, rendering the filling hard and preventing the movement which invariably takes place with the usual forms of gutta percha.

It is free from air bubbles, packing dead and solid in its place without stickiness. It finishes well and hardens rapidly. Perfect adhesion and moisture tightness to the walls of the cavity may be obtained by wiping the cavity out with a ball of cotton wool moistened with Copal Ether Varnish. Carefully used it will be found, where not exposed to wear from mastication, one of the most satisfactory of all white fillings.

Samples of the above were obtained in England by some American dentists who attended the International Medical Congress, and as far as heard from they are pleased with this form of gutta percha.

PRICE PER CAKE, \$1.00.

FOR SALE BY ALL DENTAL DEPOTS.

JAMES V. LEWIS,
No. 15 Court Street, Buffalo, N. Y.

IRON BRACKET DRAWERS.

A very convenient device when a receptacle for small articles is wanted under a Bracket, Table, Shelf or Bench.

They turn out on a center. Size $4 \times 3\frac{1}{2} \times 1$ inches. Original price 60 cents; price now 25 cents.

BUFFALO DENTAL M'F'G CO.

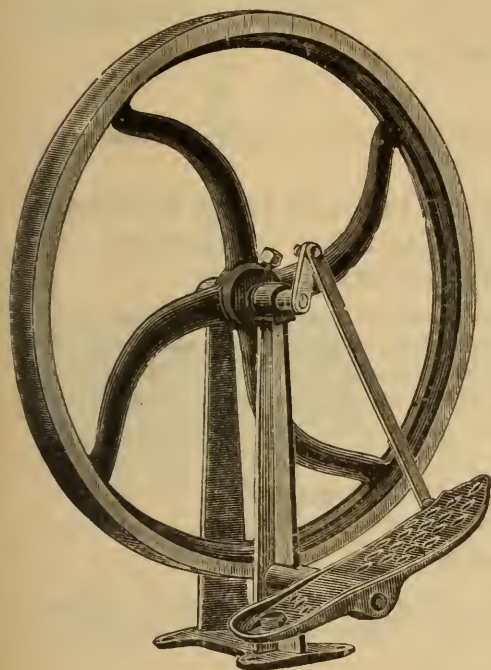
WANTED.

Dentists having old volumes or back numbers of the "Dental Register," which they desire to sell, will find a purchaser, by addressing S. A. FREEMAN, No. 14 Court Street, Buffalo, N. Y.

DRIVING WHEELS FOR LATHES.

We take pleasure in illustrating the two driving wheels here shown, believing that they will be found desirable and convenient for the use of the dentist, as well as moderate in price.

Every wheel is warranted well made and true, and their diameter and weight are sufficient to give the required speed and steadiness of motion.

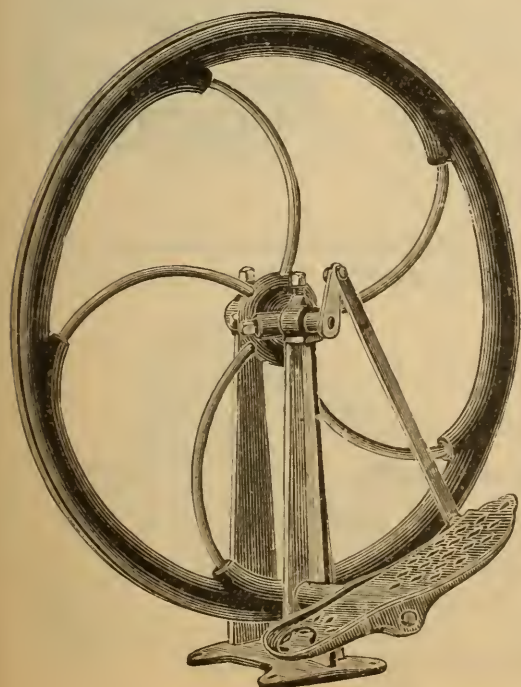


DRIVING WHEEL No. 1.—

This is a cast iron wheel, eighteen inches in diameter, weighing 20 lbs. Total weight, as illustrated, 28 lbs. The rim is grooved for use with a round belt or cord. The standard is a single casting which may be either fastened to the floor or suspended from the lower side of the bench; in which case it can be easily adapted for operating a lathe set with the spindle pointing towards the operator. In this case the treadle may be made of a board hinged to the floor, allowing the movement of the whole leg, and giving more power than the rocking treadle shown in the cut, or the rocking treadle may be easily adapted, if it is preferred.

PRICE.

Driving Wheel No. 1, \$4.00



DRIVING WHEEL No. 2.—

This is a heavy cast iron rim with arms of $\frac{3}{8}$ round steel. The weight is thus thrown principally into the rim of the wheel, making it a very effective one for the weight. The diameter is 20 inches, weight 25 lbs.; total weight 33 lbs. The rim of the wheel is grooved for use with a round belt or cord. The standard is a single casting, which may be either fastened to the floor or suspended from the bench, in the same manner as the No. 1 wheel.

PRICE.

Driving Wheel No. 2, \$6.00

DENTAL RUBBERS.

Buffalo Rubber No. 1, per lb., \$2.25
 Buffalo Rubber No. 2, light colored, " 2.25
 Buffalo Black Rubber, " 2.25

These rubbers are carefully made, from good stock, and by experienced hands, and are confidently recommended for dental use.

BUFFALO DENTAL MANUFACTURING CO.

REDUCTION IN PRICE.

PRACTICAL DENTAL METALLURGY,

By THOS. FLETCHER, F. C. S.,

WARRINGTON, ENGLAND.

A concise treatise on the Physical Properties of Metals and Alloys of actual or possible use to Dentists, including

GOLD, SILVER, COPPER, TIN, NICKEL, TUNGSTEN, ANTIMONY,
ALUMINUM, CADMIUM, IRON, LEAD, ZINC, PLATINUM,
PALLADIUM, BISMUTH:

Their melting points, expansion and contraction, tenacity, specific heat, combining equivalents, specific gravity, resistance to crushing, behavior with acids and alkalis in air, chemical tests, methods of purifying, detection of impurities; the composition and processes of preparation of filling materials at present in use, gold, white fillings and amalgams, the construction of apparatus necessary for metallurgical processes, etc., etc.

Each alternate page is blank for notes.

PRICE, \$1.75.

FOR SALE BY

BUFFALO DENTAL MANUFACTURING CO.

JUST PUBLISHED.

++

THE

PRINCIPLES AND PRACTICE OF DENTISTRY

INCLUDING

ANATOMY, PHYSIOLOGY, PATHOLOGY, THERAPEUTICS,
DENTAL SURGERY AND MECHANISM.

BY

CHAPIN A. HARRIS, M. D., D. D. S.

ELEVENTH EDITION, REVISED AND EDITED BY

FERDINAND J. S. GORGAS, A. M., M. D., D. D. S.

With two full-page Plates and seven hundred and forty-four other Illustrations.

PRICE:

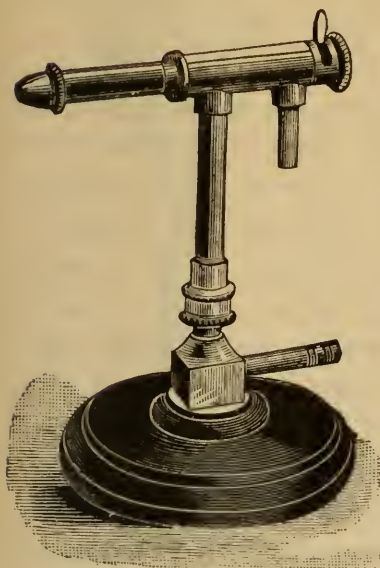
Cloth, \$6.50 | Leather, Raised Bands, \$7.50

SENT BY MAIL ON RECEIPT OF PRICE.

For Sale by the Buffalo Dental Manufacturing Co.

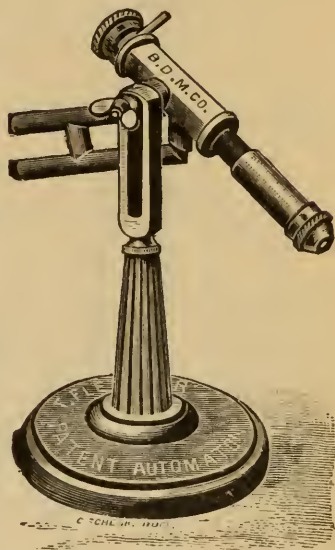
SOLDERING APPARATUS

FOR GOLD CROWN WORK.



Automaton Blow-Pipe—No. 6 A.
Price, \$4.00.

The increasing use of the Richmond and other patterns of artificial crowns has created a demand for better appliances for soldering gold than have heretofore been in use in dental laboratories, and the articles here illustrated are presented as forming a complete outfit for the purpose. Two forms of the Automaton Blow-Pipe are shown. The No. 6 A is mounted on a ball-

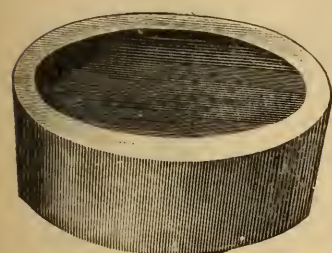


Automaton Blow-Pipe—No. 6 D.
Price, \$4.50.

diately above the base, and is capable of motion in any direction. The No. 6 D is fastened to an upright by means of a thumb-nut. It can be removed and used in the

hand when it is desirable to do so. The size of the flame is adjustable by means of the small lever shown at the butt end of the Blow-Pipe, which regulates the supply of both gas and air by the same motion, giving the most complete control of the heat.

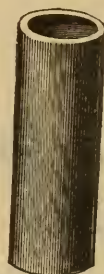
The cupped ends of the Carbon Cylinders are admirable supports for the crowns while soldering. The Carbon Blocks are four



Carbon Block. Price, 25c.

inches in diameter, and the Cylinders $1\frac{1}{8} \times 3$ inches. They are perfect non-conductors, and much more cleanly to use than charcoal.

Price, 15c.



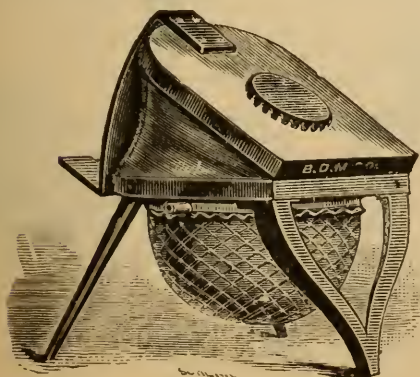
Carbon Cylinder.

The No. 9 New Style Foot-Bellows is well adapted for furnishing the blast required for soldering. The elasticity of the rubber disk keeps a uniform pressure of air. The use of the Bellows will be found much preferable to furnishing the blast from the lungs.

For further description of these and other forms of Gas Blow-Pipes and Soldering Apparatus send for our Price List of Fletcher's Laboratory Apparatus, No. 14. Just issued.

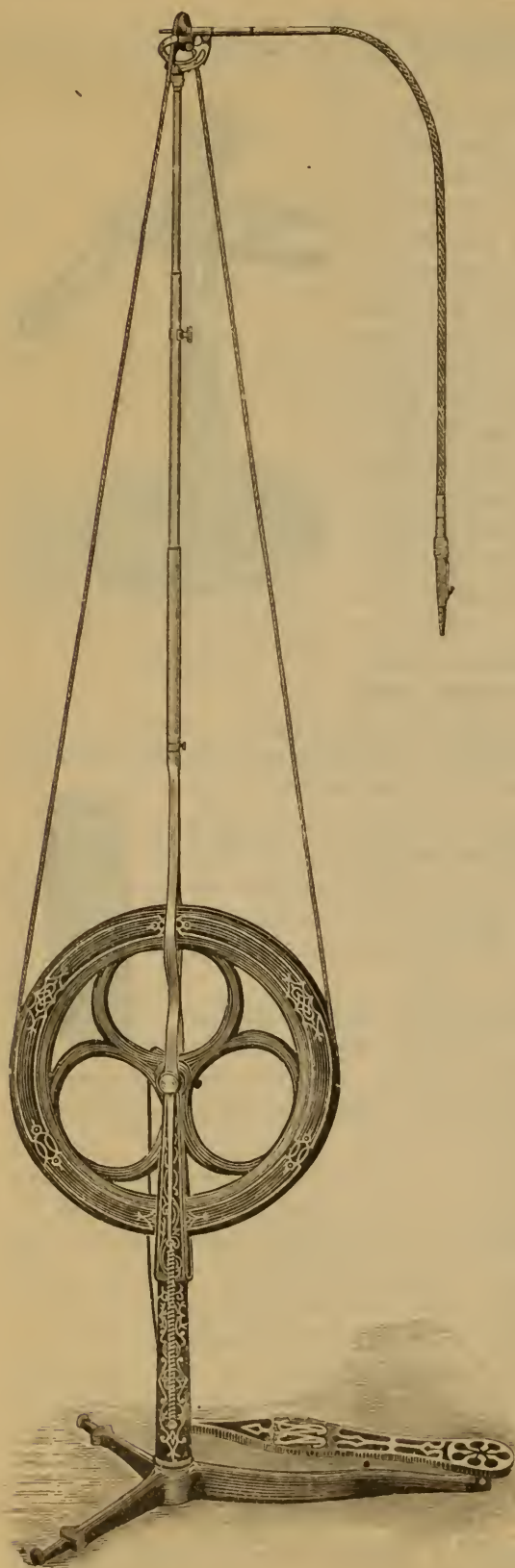
Manufactured only by the

BUFFALO DENTAL MANUFACTURING CO.



Foot Bellows—No. 9. New Style.
Price, \$5.00.

The S. S. White Large-Wheel Dental Engine.



Patented Aug. 16, 1870; Aug. 4, 1874; Sept. 2, 1879; July 6, 1880. Reissues, Nov. 12, 1872; Jan. 2, 1877; March 4, 1879; March 11, 1879; Nov. 4, 1879. English Patent, Aug. 13, 1879.

Having had occasional inquiries for an engine which would give a higher rate of speed than the regular style, as, for instance, in cutting over sensitive dentine or in burnishing fillings, we have decided to add to our stock an engine having a larger and heavier driving-wheel. This engine will have the old-style rocking balance and the improved pulley-head, and will be adapted to carry any one of the three following sizes of driving-wheels:

Diam., 12	inches;	weight, 9½ lbs.
" 13¼	"	" 10½ "
" 13¼	"	" 16½ "

The driving-wheel of the regular engine is 10¾ inches in diameter, and weighs 9 lbs. It is believed that sufficient variety in sizes and weights is offered to meet all requirements. It is claimed that, besides giving a higher rate of speed, for emergencies, the larger driving-wheel will do ordinary work with less movement of the treadle, and consequently less exertion on the part of the operator.

In ordering, please state size of driving-wheel desired.

Price, with either Wheel and

14 Instruments, . . . \$55.00

Boxing,75

The S. S. White Dental M^rg Co.

PHILADELPHIA, NEW-YORK, BOSTON,
CHICAGO, BROOKLYN.

SNOW'S SALIVA EJECTOR.

Patented March 18, 1879.

**"STANDARD" STYLE, WITH THE
ROLLINS EXHAUST BOTTLE.**

CLEANLY, EFFICIENT, NOISELESS IN ACTION.

Can be Used Without a Water Supply.

This apparatus has lately been improved by the addition of the Rollins Exhaust Bottle, suggested by Dr. W. H. Rollins, of Boston. This is shown in the illustration as connected with the Standard Ejector, but it is equally applicable to the Wall Pattern. The bottle is placed under the chair, the ejector exhausting the air therefrom, and the saliva descends directly into the bottle, where it remains; the air passing over with it being drawn into and expelled from the ejector.

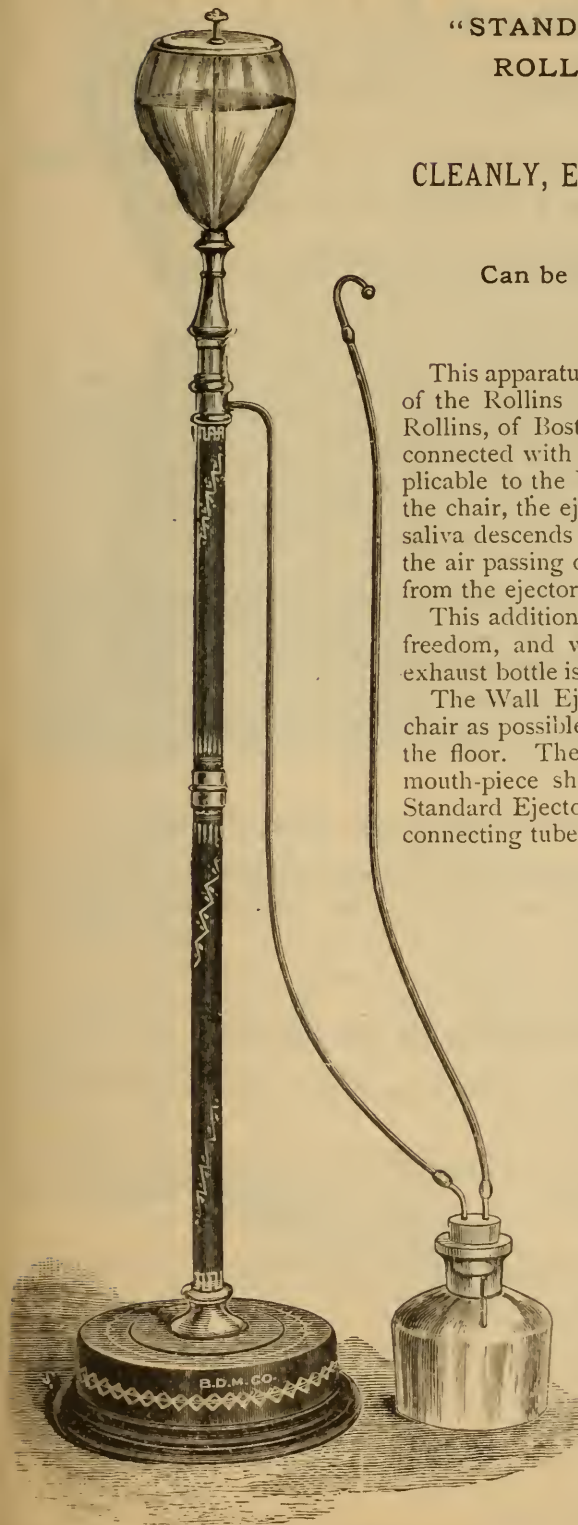
This addition enables the ejector to operate with greater freedom, and with less water than is required when the exhaust bottle is not used.

The Wall Ejector can be hung to the wall as near the chair as possible, with the lower reservoir nearly touching the floor. The connecting tube from the ejector to the mouth-piece should be as short as possible. As the Standard Ejector can be set closely to the chair, a shorter connecting tube can be used than with the wall style. If the exhaust bottle is used, the same water can be used many times over, as it is not contaminated with saliva, and the ejector can be placed in any convenient place, a long connection being in this case admissible; a matter of great convenience in many operating rooms.

The mouth-piece and tube should be rinsed after use by allowing a tumbler full of water to run through them, and the mouth-piece thoroughly washed. It can then be replaced on the rubber tube, which it is well to remove from the ejector and hang on the wall to drain. Glass mouth-pieces may be used for the fastidious, each patient having the exclusive use of one.

PRICES.

Wall Saliva Ejector, with four feet of Rubber Tubing,	\$15.00
Standard Saliva Ejector, with four feet of Rubber Tubing,	18.00
Rollins' Exhaust Bottle,	1.00
Glass Mouth-Pieces, each, . . . . .	.20
Boxing,	1 00



"Standard" Style, with the Rollins Exhaust Bottle.

THE SNOW & LEWIS AUTOMATIC PLUGGER.

Patented October 24, 1865, October 30, November 20, 1866, June 23, 1868, and June 1, 1869.
Patent of October 30th, 1866, re-issued August 22, 1876, February 2, 1880.

THE MOST POPULAR AND EFFICIENT DENTAL INSTRUMENT EVER OFFERED TO THE PROFESSION.

This instrument, since its invention in 1865, has been improved from time to time, and has become one of the best known and most indispensable adjuncts to the dentist's operating case. It is now made after two patterns, the old and new style. The "old style" of instrument has

TWO DISTINCT GRADES OF BLOWS,

one-eighth and one-quarter inch, regulated by means of the ring on the body of the instrument; the finer graduation of the strength of the blow being attained by turning the milled head at the end of the case.

The "new style" embodies an improvement, by which all lateral motion between the socket-piece and its bearings is prevented, and future wear between the parts provided for. This insures

PERFECT STEADINESS OF THE POINT,

which can now be placed as desired with the same certainty as with a hand instrument. The new instrument has but the one-eighth inch length of blow, which can be varied in strength, as before, by the milled head at the end of the case. By means of the ring on the handle, either of

THE PLUGGERS CAN BE LOCKED

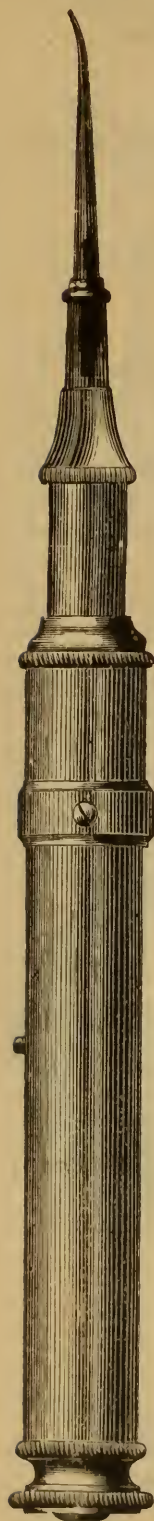
and used as a hand instrument. The above feature is not presented in any other Spring Plugger in the market.

The mechanical devices of the Plugger are protected by patents, embracing all points of any moment applicable to Automatic Pluggers, and we hardly need say that we shall strictly enforce all the rights secured to us therein.

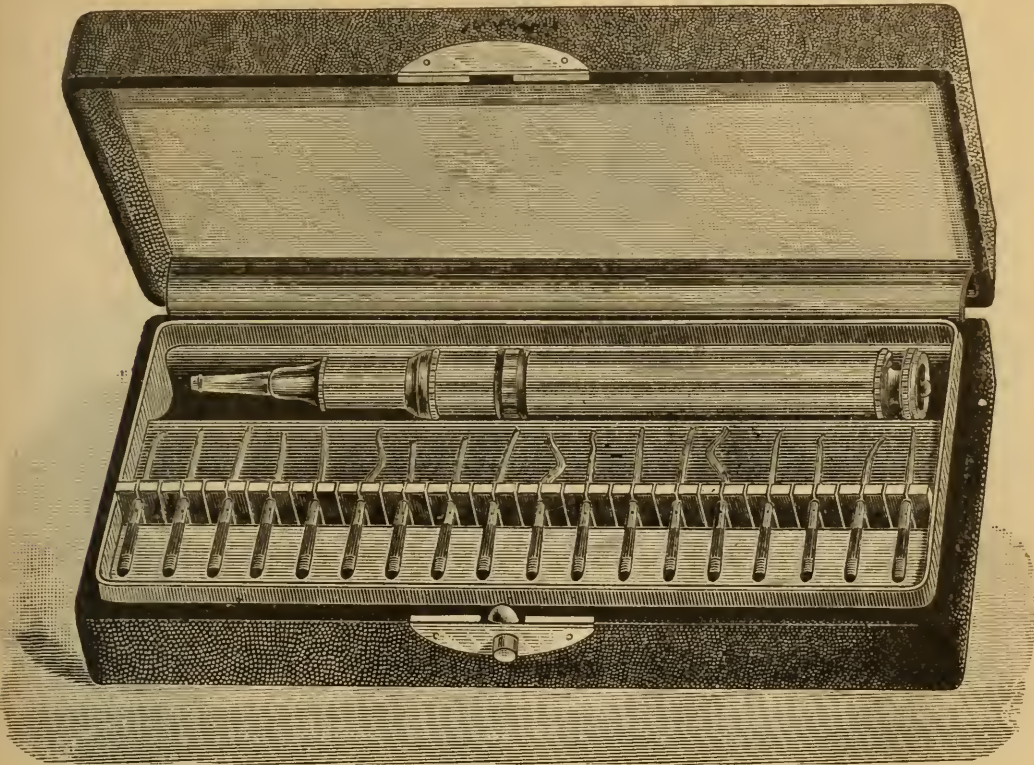
PRICES.

Automatic Plugger, triple Gilt, No. 1 or 2,	\$13.00
Automatic Plugger, Silver or Nickel-plated,	9.00
Points, per dozen,	3.50
Varney's Points, per set of 13,	7.00
Butler's Points, per set of 16,	6.00
Enamel Chisels, per set,	2.25
Morocco case, with Point Rack,	3.50

Points of any desired pattern furnished to order.



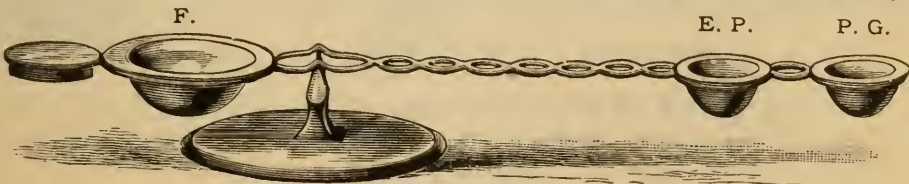
MOROCCO CASE FOR THE SNOW & LEWIS AUTOMATIC PLUGGER.—This case is of morocco, velvet-lined, and contains a Snow & Lewis Automatic Plugger and 18 selected Plugger Points, supported by a Hayes Point Rack, Nickel-plated.



PRICES.

Snow & Lewis Automatic Plugger, Silver or Nickel-Plated, 18 Plugger Points, Point Rack and Morocco Case, complete,	\$17.50
Morocco Case, with one Point Rack, for 18 points,	3.50
Morocco Case, with two Point Racks, for 36 points,	5.00

FLETCHER'S DIFFERENTIAL BALANCE FOR AMALGAMS.—This new balance for obtaining the proper proportions of filings and mercury is so simple and precise that it is indispensable when uniformity is desired. The resulting mass is always the same, whatever the nature of the alloy may be.



New Pattern—Nickel Plated.

To use the method, weigh with the new differential balance the proportions required, by putting mercury in the cup E. P. for the Extra Plastic Amalgam, or in the cup P. G. for the Platinum and Gold Amalgam, then pouring filings into the cup F., until the mercury is balanced.

F.—E. P. gives 3 of filings to 1 mercury (Extra Plastic). F.—P. G. gives 4 of filings to 1 mercury (Platinum and Gold).

PRICE.

Fletcher's Differential Balance, 75 cents.

WILLIAMS' INSOLUBLE CROWN



An Oxy-Phosphate for Filling Teeth.

This Cement is a chemical compound, containing some of the constituents of the natural teeth, and with these organs it is in perfect harmony. It is, we believe, without exception, superior to all others, and is meeting everywhere with a large and extensive sale. It becomes as hard as bone in five minutes, or in less time if some of the powder is covered over the filling, or the hot air syringe used or hot instruments applied. It overcomes sensitiveness without deadening the nerve, and, being non-irritant, is excellent for capping exposed pulps. It resists the action of the fluids of the mouth to a greater extent than any other plastic filling material, and is particularly recommended for large crown cavities where the teeth are badly decayed away. When properly manipulated it withstands mastication in all parts of the mouth under all circumstances. After it becomes perfectly hard and is nicely polished, it looks and is as near like the natural tooth as it is possible to produce. If those dentists who have not used the Insoluble Crown Cement will give it a fair trial we feel confident that they will use it altogether. Age does not deteriorate it. Every filling is worth the price of the package.

For uniformity, strength, durability, density, quality, quantity and price, it has no equal.

PRICE PER PACKAGE, . . . \$2.50,

Each containing one ounce of powder in two colors, and one-half ounce of liquid; also two small vials filled with yellow and gray pigments, so that any desired shade can be obtained. Small size packages \$1.50.

PHILADELPHIA, June 20, 1884.

I find Dr. Williams' Insoluble Crown Cement to excel all other plastics I have ever used.

DR. S. H. MOORE, No. 1111 Vine Street.

MANUFACTURED EXCLUSIVELY BY

DR. G. W. WILLIAMS,
Germantown, Philadelphia, Pa.

Sold at Dental Depots.

N. B.—If you cannot procure this Cement from your dealer in dental supplies, remit P. O. Order or Draft to us, and we will forward, free of charge.

DRESSING FOR EXPOSED PULP

— AND —

SENSITIVE TEETH.

PREPARED BY

DR. A. TERRY, - - Norwalk, Ohio.

PRICE PER BOTTLE, \$1.50.

For Sale by Buffalo Dental Manufacturing Co.



ULARISTON

A SUPERIOR MOUTH-WASH.

This preparation is an improvement on a popular wash, and contains in its present form all the qualities that go to make a faultless mouth-wash for family use.

The stimulating effect imparted to the gums and mucous membranes by the use of this wash is believed to be superior to that of most washes in the market.

For sale by all dealers in dental goods.

PRICES.

Per Bottle,	\$0.40
" doz.,	4.00
" $\frac{1}{4}$ gross,	10.80
" $\frac{1}{2}$ gross,	20.40

BUFFALO DENTAL
Manufacturing Co.

REDUCTION IN PRICE.

On and after January 1, 1885, the price of the SNOW & LEWIS

AUTOMATIC PLUGGER

WILL BE REDUCED TO \$9.00.

BUFFALO DENTAL MANUFACTURING CO.

GIDEON SIBLEY,
MANUFACTURER OF
ARTIFICIAL TEETH
AND DEALER IN
DENTAL SUPPLIES,

THIRTEENTH AND FILBERT STS., - - PHILADELPHIA, PA.



It is gratifying to find, that after years of assiduous labor to produce the best Tooth made, their superiority is so universally acknowledged, and the rapid demand for them has necessitated large additions to our factory and salesroom.

POINTS ON WHICH WE SEEK COMPARISON :

*STRENGTH, NATURAL SHAPES, TEXTURE, COLORS, LARGE DOUBLE-HEADED
PINS, &c., COMBINED WITH OUR VERY LARGE ASSORTMENT
OF MOULDS AND VARIETY OF SHADES.*

Ask your dealer for them, or send One Dollar for a Sample Set.

[ja84-1y] FOR SALE BY BUFFALO DENTAL MFG. CO.

1 OZ. TROY,

\$3.00.



GOLD AND PLATINUM ALLOY.

This Alloy is prepared under the supervision of an eminent analytical chemist, which enables us to guarantee the chemical purity of the metals used.

Having been subjected to the severest tests before offering it to the Dental Profession, it has been demonstrated that it will not shrink or expand, nor discolor in the mouth, and can be used in the Front Teeth with better results than any other Filling except Gold.

PRICES:

1 OZ., \$3.00, 2 OZs., \$5.50, 4 OZs., \$10.00.

MANUFACTURED BY

**GIDEON SIBLEY,
DENTAL DEPOT,
13TH & FILBERT STREETS,
PHILADELPHIA, PA.**

CARD.

*IF you use other alloys
and they expand, caus-
ing your patient to re-
turn, with severe pain
in the tooth filled—*

*TRY SIBLEY'S ALLOY,
which will not.*

*IF the alloy you use
shrinks, thus allowing
the fluids to enter the
cavity, and the decay
to go on as freely as
before filling—*

*TRY SIBLEY'S ALLOY,
which will not.*

*IF in using other alloys
find that they discolor
in the mouth—*

*TRY SIBLEY'S ALLOY,
which will not.*

**IF YOU WANT A RELIABLE ARTICLE
TRY SIBLEY'S GOLD and PLATINUM ALLOY.**

We Guarantee Satisfaction.

Put up in 1-oz., 2-3 oz. and 1-3 oz. Packages. PRICE \$3.00 PER OUNCE.

THE DENTAL PRACTITIONER

**A Monthly Journal Published in the Interest of
the Dental Profession.**

ENLARGED AND IMPROVED.

SUBSCRIPTION PRICE, 50 CENTS A YEAR IN ADVANCE.

Edited by CHAS. E. PIKE, D. D. S.

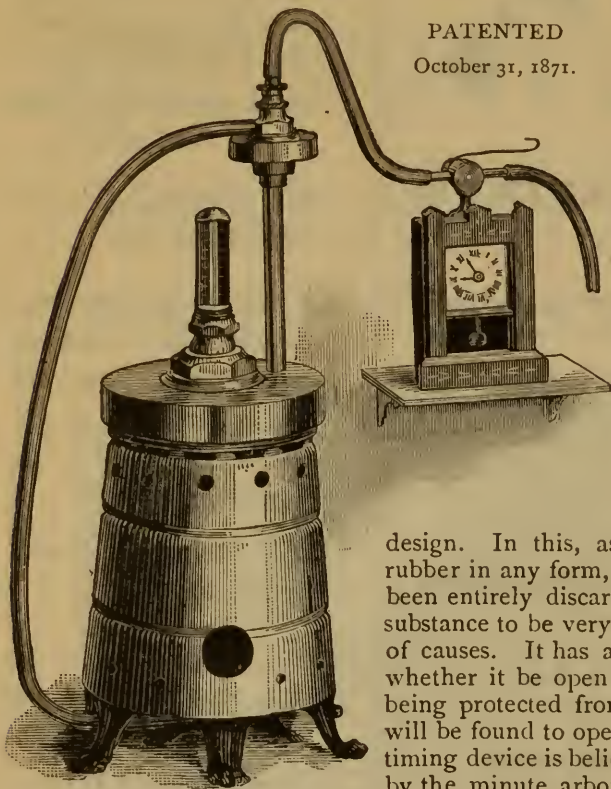
1415 WALNUT STREET, PHILADELPHIA.

Published by GIDEON SIBLEY, 13th and Filbert Streets, Philadelphia, Pa.

COOLIDGE'S GAS REGULATOR

FOR DENTAL VULCANIZERS.

PATENTED
October 31, 1871.



This device was invented by Dr. J. B. Coolidge, of Boston, about the year 1871. A number of them were made and sold at that time, and are to-day in good condition. It is operated by the pressure of steam upon a thin metal disc, which, yielding to the pressure, closes a valve which controls the flow of gas to the burner under the vulcanizer. Extensive experiments have been made to procure a metal for the disc which would not lose its elasticity by use, nor give way from the effects of corrosion, and it is offered to the dental profession with the assurance that it will be found to be accurate, serviceable, and durable.

The time regulator is of new design. In this, as in the gas regulator, the use of rubber in any form, excepting as connecting tubing, has been entirely discarded, as experience has proved that substance to be very prone to deterioration from a variety of causes. It has a metallic valve, which is gas-tight, whether it be open or closed, and the operating screw being protected from the action of the gas, the valve will be found to operate with ease and certainty. The timing device is believed to be new, and as it is operated by the minute arbor of the clock, instead of the hour

arbor, as is usually the case, it is capable of very delicate adjustment as to time, its variation being limited by seconds instead of minutes.

The gas regulator is a better means of maintaining a regular heat than a thermometer, for the reason that as it acts by the steam pressure its movement is positive, and it can be depended upon to act at the desired point after it is once properly set. A certain steam pressure is the result of the application of a certain amount of heat, and it is immediately indicated by the diaphragm of the regulator. Before the thermometer can act, it has to receive a certain amount of heat, and the rapidity with which this will be received depends upon the conductivity of the parts between the flame and the thermometer. The amount of air above the water in the vulcanizer, the variation of thickness of metal at the bottom of the mercury cup, and the presence or absence of mercury in the mercury bath, are all conditions which vary and retard the action of the thermometer.

The following experiment will illustrate the comparative operation of the two devices: Let the vulcanizer be closed with, say, two inches of water in it, and heat applied. The regulator will turn down the gas, when the thermometer registers somewhere in the neighborhood of 300°. If the screw cap of the safety disc is now loosened, and steam allowed to escape for one minute, and the screw cap then tightened, the thermometer will in a few moments be found to register 320°.

The reason of this is that as air conducts heat very imperfectly, its mixture with the steam interferes with its conductivity and with the indication of the temperature by the thermometer; but after the air has been allowed to escape, there is an atmosphere of steam above the water in the vulcanizer, which must be of the temperature due to its pressure, throughout its whole extent.

PRICE:

Gas and Time Regulator, complete, \$10.00

Manufactured only by BUFFALO DENTAL MANUFACTURING CO.

CAULK'S FILLING MATERIALS.

(ESTABLISHED 1877.)

DIAMOND CEMENT

THIS COMPOUND NOW STANDS WITHOUT A RIVAL. From Five to Seven Years Test by leading Dentists throughout the World has proved it to be all that has been claimed for it.

FOR MOUNTING ARTIFICIAL CROWNS—it has been highly recommended, is non-irritating, non-conducting, in harmony with tooth structure, has no shrinkage or expansion, and excellent for lining cavities and capping pulps.

IT WILL HARDEN IN WATER OR SALIVA. It does not deteriorate with age. We have some over THREE YEARS OLD, and it works as nicely as when first made. We have increased the quantity of liquid in both packages, and all bottles are lettered with "Caulk's Diamond Cement."

PRICE—(Two Colors.) Gray and Yellow,	Per Package, \$2.00
" (One Color) Gray, Yellow, Medium, Light,	" " 1.00

The Universal Verdict is that Caulk's Diamond Cement is the best.
A Fair Trial will convince you.

CAULK'S PAR-EXCELLENCE ALLOY.

THIS GOLD AND PLATINA ALLOY IS MANUFACTURED on a NEW PRINCIPLE.

NONE BETTER MADE. SAVES TEETH WHERE OTHERS FAIL. With one exception, we were the first to manufacture an Amalgam containing Gold and Platina, although we did not call it such, simply our trade name Par-Excellence Alloy, which fully expresses the superiority of this combination of metals over others.

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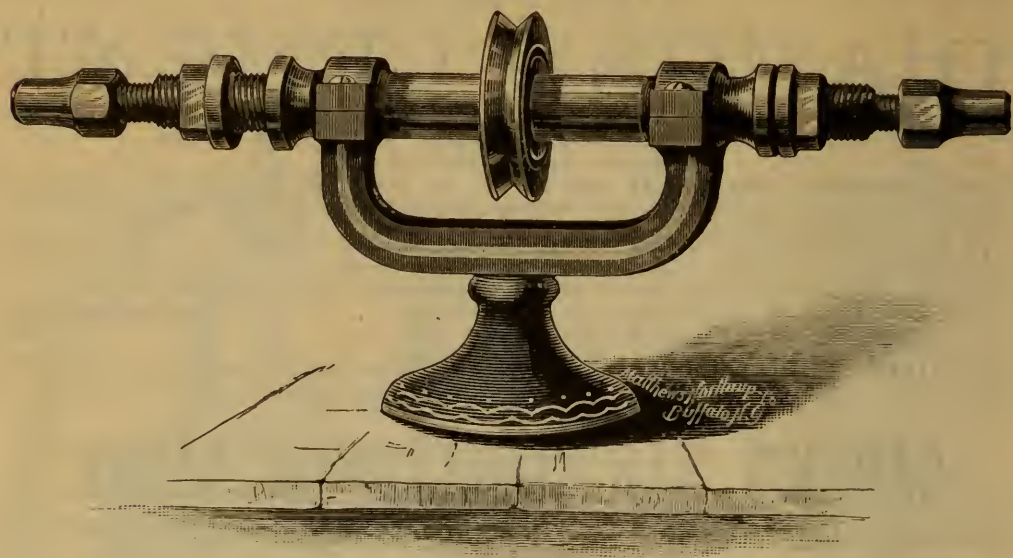
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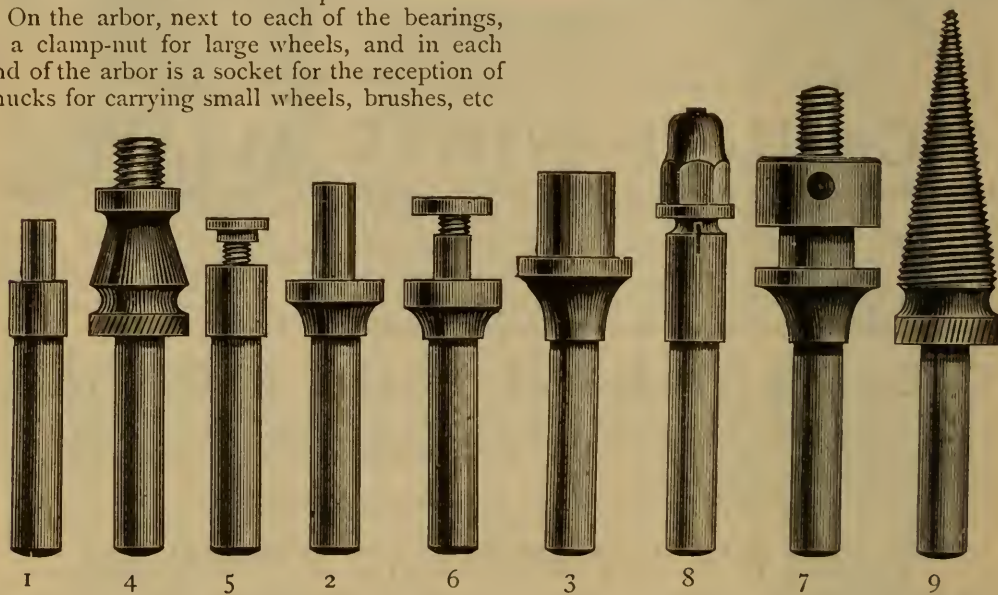
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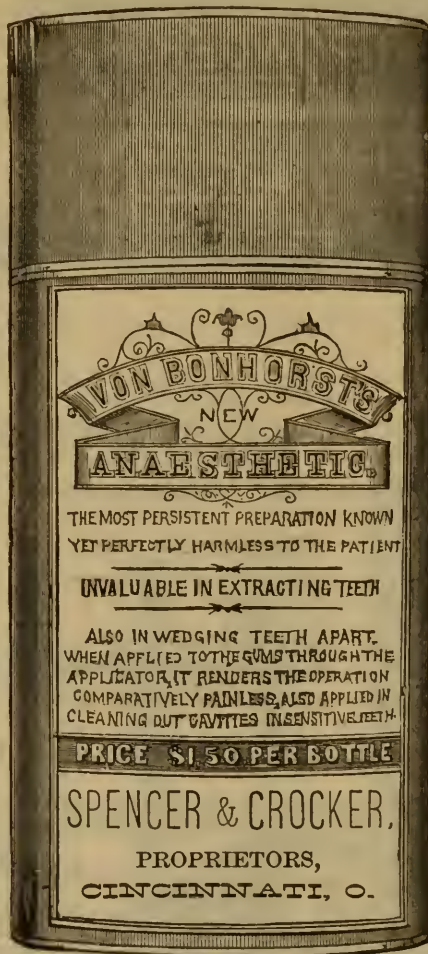
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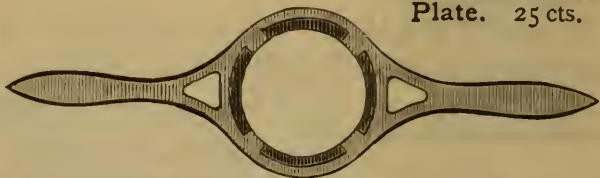
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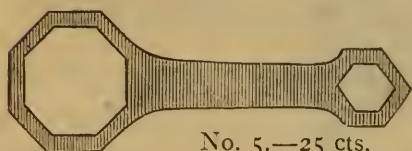
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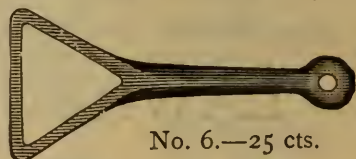


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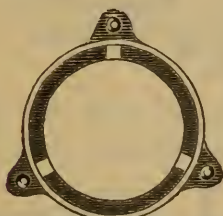
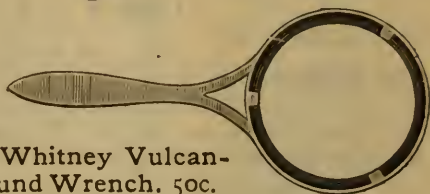


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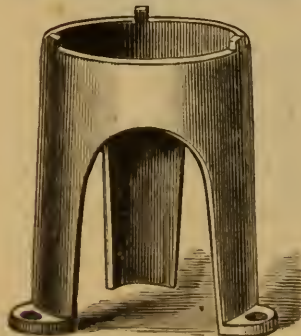
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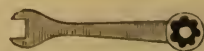
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THE DENTAL ADVERTISER.

VOL. XVI.—BUFFALO, N. Y., JULY, 1885.—No. 3.

MIXED ANÆSTHETICS.

BY LAURENCE TURNBULL, M. D., PHILADELPHIA,

Aural Surgeon Jefferson Medical College Hospital; Author of a Manual of Anæsthetic Agents, etc.

Within the last year or two there has been employed surreptitiously a mixture of chloroform and nitrous oxide gas as an anæsthetic in dental operations, resulting, as is well known, in the death of one or more individuals. Still more recently these same agents, or “Regnaud’s chloroform mixture,” which consists of four parts of chloroform to one of methylic alcohol or Tyrell’s compound of chloroform and eau de cologne, equal parts, (*The Dental Record*, London, April, 1885, p. 160,) has been advertised as vitalized air in the West, and it has been claimed as superior to the nitrous oxide gas, and being as safe in its operation on the system. It is stated that the proportion of the powerful drug chloroform is so small in quantity, say ten drops to seven or eight gallons of the gas, that it cannot kill; but, alas! for poor human nature, will the individual who employs this small proportion be content to stop at ten or even five times ten drops; will he not, like the intemperate man, who only takes a little, be tempted to take a little more? Who is to regulate this? If the gas is very low and small in quantity when an operation is at once required, what will be the result? Owing to the greater density of the vapor of chloroform, it always remains near the bottom,* and the patient may receive it all in a few seconds, and thus stop the action of the heart, when

*Manual of Anæsthetics, Turnbull; Experiments in Mixing Agents and Rates of Evaporation; 2d edition.

the lungs are full of carbonic acid by the action of the nitrous oxide. The most recent practical conclusions are "that the inhalation of nitrous oxide acts primarily upon the nerve centres, first as a stimulant, then as a narcotic;"* then we have the accumulated narcotic effects of both agents—what will be the result?

There are persons with feeble hearts who cannot inhale chloroform or even apply it to the nostrils or a tooth cavity, without producing a feeling of faintness. Now, what is the great risk in the use of this small amount of chloroform? It has been proven by careful experiments and observation that if a patient is not thoroughly under the influence of chloroform that any irritation of the fifth pair of nerves would produce slowing of the heart's action and finally stoppage through the pneumagastic nerve. Dr. Brunton, of England, has clearly shown this by experiments on the rabbit, which have been repeated for me by Dr. Edward T. Reichert, Lecturer on Physiology, University of Pennsylvania.† This will account for the numerous deaths from chloroform (see recent case in Chicago), or nitrous oxide and chloroform, which have taken place in the dental chair in Paris (*British Medical Journal*, January 24, 1885). In operations on the teeth chloroform is the most powerful of the anæsthetics. Too much caution can not be written and taught, that the heart power is most seriously reduced by its action, and that it is incapable of supplying the brain properly, unless the patient is in a recumbent posture.

Then again, where dangerous symptoms show themselves, it is much more difficult to counteract those from chloroform, as we cannot use, with success, one of the best stimulants, except directly to the heart; namely, electricity. It has been clearly proven by Dr. Gasper Griswold,‡ that in cardiac and respiratory failure the pneumagastic nerve retains its excitability in chloroform poisoning, and it is, therefore, extremely dangerous to supply electricity to the neck in this condition.

The mixture which I recommend, of nitrous oxide gas and the vapor of anhydrous ether,§ possesses the following advantages. That when given in moderate quantity combined with nitrous oxide gas, it is a cardiac stimulant, and mixes completely with the gas, and we have a stimulant and a narcotic in the gas. Again, we have the great advantage that the nitrous oxide can be withdrawn, and a prolonged operation can be performed by means of the ether vapor produced by hot water, 96° to 98° F., which can not be done by the nitrous oxide alone. Now, what are the objec-

*Dr. J. D. Thomas, *Dental Cosmos*, April, 1885, p. 239.

†A full account of these and other experiments, with tracings, when completed, I will publish, in the future.

‡*Medical News*, February 28, 1885, p. 210.

§The New Local Anæsthetic and Ether by the Rectum, p. 76; P. Blakiston, Son & Co., 1012 Walnut street, Philadelphia. Pamphlet by Laurence Turnbull, M. D.

tions to the use of this mixture of ether and nitrous oxide? First—It is stated the bulk of the vapor of the ether is too great, but this is not so; to three gallons of the nitrous oxide, (only half the quantity usually required for an operation,) about one ounce and a half of ether, or, if the operation is prolonged, two or even three ounces.

Second—In regard to the safety. There are no absolutely safe anæsthetics; nitrous oxide is the first on the list as to safety, yet there have been reported cases of death from this agent only when given in excess, as that of Dr. Harrison, who desired the operator to give it until he snored, which should never be done with this agent.

Ether comes next. The most complete statistics give only one death in 23,204 cases. What are the chief dangers in breathing ether? Chiefly from impeded or failing respiration. How is this seen and prevented? As soon as stertor is noticed, stop and use artificial respiration. Another danger is falling back of the tongue; this is to be brought forward by forceps, if at hand; or, if not, by "Nancrede's" method of drawing the jaw forward and opening the mouth to relieve asphyxia. As to the use of hypodermic injections of atropia sulphas, this is sometimes useful. I am yet doubtful to trust it, as some recent experiments with it have not been satisfactory. Atropia powerfully depresses the heart of frogs, slowing, or even completely arresting its action.

When injected into the carotid, so as to reach the central nervous system, atropia first reduces the number of the heart's beats, showing that it stimulates the nucleus, whilst it paralyzes the termination of the vagi.

After poisoning by atropia, neither stimulation of the vagi nor of the sinus affects the heart, hence we may conclude that atropia paralyzes the intra-cardiac inhibitory apparatus.

The third objection is the explosive character of the mixture of nitrous oxide with ether vapor, but this could only occur from carelessness, as it sometimes happens at night with ether alone in the use of actual cautery, but it requires a flame or a spark to do this. "It would not be spontaneously explosive and would not be more dangerous than a mixture of ether vapor and air."* The fourth objection, and the last, is that two deaths have followed this means of producing anæsthesia—nitrous oxide and ether; the first case, (the removal of the tongue,) was not a suitable one, and the anæsthetic should have been given by the rectum.† The second was one of strangulated hernia. In both cases there was too much ether used.‡

*Letter from Prof. W. H. Green, Chemist, University of Pennsylvania, April 6, 1885.

†Turnbull on Etherization by the Rectum; p. 67. The most obvious advantages of this method of Etherization. Philadelphia: P. Blakiston, Son & Co.; 1885.

‡In recent experiments we have found that one ounce of Squibb's ether will kill a good sized rabbit by being crowded upon it.

It is worthy of careful notice and caution that most deaths from ether occur during operations on the bowels, rectum, perineum, or vagina, the reason being that the surgeon, from his position, cannot watch the condition of his patient. Another important matter: in England, where the two deaths occurred, the ether in many instances was not pure,* being made of impure alcohol. It is of the utmost importance for the safety of the patient that nothing but pure, almost anhydrous ether, like Squibb's, should be employed, and should evaporate at 96° or 98° without leaving the slightest stain on the paper.

Dr. Thomas, who has had so much experience in the administration of nitrous oxide, and who assisted in our experiments, concludes, with us, that anæsthesia produced by the gas and chloroform was drawing the patient too close to the danger line to make it applicable for general use in dental operations—that while, by pushing the anæsthesia to a profound state, danger would be escaped from irritation of the fifth nerve; but, as shown, the heart pressure was diminished to too great an extent to allow that condition to exist.

PHILADELPHIA, 1502 Walnut Street, June, 1885.

CLASP AND BAND MATRICES.

BY J. A. WOODWARD, D.D.S., PHILADELPHIA, PA.

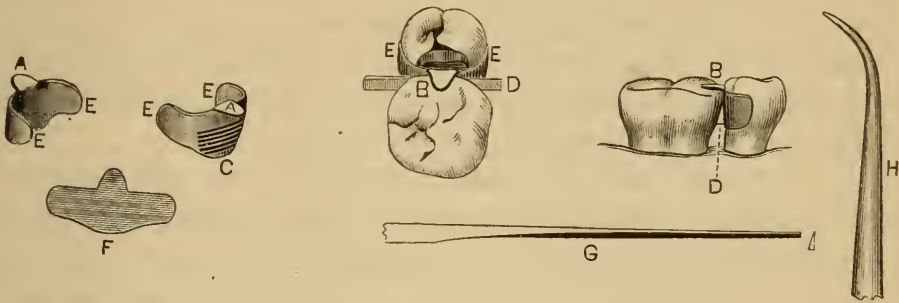
The efficiency of the clasp matrix is mainly due to an extension, Fig. 1, A, forming a lug, B, which rests upon the approximate tooth, preventing movement of the matrix in the direction of the cervix, and parallel grooves, C, across the reverse. The edges of these grooves are sharp, and pitch away from the cervical edge of the matrix. The wooden wedge, D, will be caught in them, when pushed between the matrix and the adjoining tooth, retaining the matrix and holding the wedge free of the gum. The steel blank, F, is No. 28 thickness, standard wire gauge, and will make a matrix for bicuspsids below medium size. For the medium size and above the blanks should be No. 27; for the molars No. 25.

Boxwood is preferred for wedges. They are quickly and easily formed with a new file, and should taper in two directions, G. The width and thickness is determined by the shape of the teeth and the space between

*Turnbull's Manual of Anæsthetics, under Ether, p. 355. Also the *Therapeutic Gazette*, May 15, 1885. Note on an impurity in Ether, from *London Pharmaceutical Journal*, April, 1885, Ether that was labelled Pur. B. P., contained Aldehyde, a deleterious agent.

them. It is most convenient to press the teeth apart until there is sufficient space to allow for the contour of the filling and the thickness of the matrix. Should the cavity be extensive, the preparation can be completed at once, a thin, tempered matrix adjusted, and the filling inserted. The teeth can be separated by a screw-separator and the filling finished, or by cotton tape and finished subsequently. The preparation of approximal cavities should be the same as is usual for contour fillings, excepting when the gold is to be inserted in the cylinder or mat form so much cutting away for access is not required. If a suitable matrix is not among those previously used, a blank should be fitted to the tooth to be filled much the

FIG. 1.

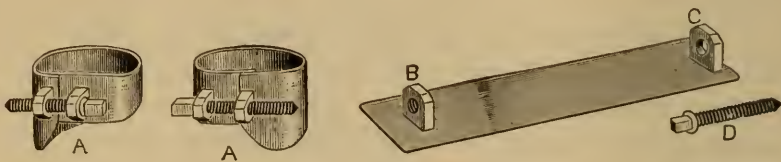


same as a clasp for plate work. The matrix near the ends, E, should press the sound surfaces of the tooth with a moderate amount of pressure, sufficient to spring the face of the matrix clear of the cervical margin of the cavity. The lug, B, should next be bent to rest upon the approximate tooth, the cervical edge dressed (filed or burred) until it passes a little below the cervical margin. The grooves on the reverse of the matrix are now cut with a fine, thin-edged jeweler's file so that they will lean or pitch away from the cervical edge. The matrix should next be hardened and the temper drawn until it will spring and not bend nor break. The face should now be polished to reflect light. When adjusted it should be clear of the cervical margin of the cavity, and have sufficient spring to pinch the wedge, so that, with the aid of the grooves, it will be retained as intended, and also allow the filling material to overlap the cervical margin. Should the tooth be of such shape that a part of the cervical margin only is free, the filling may be commenced at that point, a suitable cylinder or mat of gold being securely wedged there between the matrix and floor of the cavity. This done, the matrix will have moved a little away from the tooth—provided the boxwood wedge has not been too tightly inserted. As the filling progresses all margins may be slightly and securely overlapped with the gold. The filling, if large, may be commenced at a starting point and completed after any of the methods for inserting cohesive gold fillings—the matrix merely moulding the filling. It is preferred to commence the filling with the mats or cylinders of soft gold (Globe,

semi-cohesive, No. 4), securing one or more of them at some point or points along or across the cervical wall, depending entirely upon the hold in the tooth to prevent movement of the gold during its insertion. The surface to be in contact and those exposed to attrition are finished in cohesive gold impacted with the aid of a mallet. The removal of the matrix demands care. The wooden wedge should be withdrawn; the matrix next drawn directly away from the neck of the tooth until the grooves offer resistance. The teeth are now gently forced apart by pressing the soft steel probe, H, between them below the matrix, when it will rapidly come away. When the filling is amalgam the matrix can be removed in this way without fracturing the filling. The filling and approximate tooth are generally in contact after the removal of the matrix, and care must be exercised to avoid an excess of filling material approximately, particularly when pulpless teeth are present. A saw or separating file will clear the way for the finishing appliances. Little labor is required, the margins of the filling being readily trimmed flush and polished.

A, A, Fig. 2, represent the band matrix. It is almost indispensable where large fillings restoring the whole or parts of the crowns of molars and bicuspid are to be quickly and comfortably inserted. An impression of the tooth for which the matrix is to be made is taken in modeling

FIG. 2.



compound. A piece of straight-grained pine wood, about four inches in length and a half inch square, is next whittled and filed to fit the impression, and should taper slightly so that the matrix will have a little less diameter at the cervical edge. A strip of phosphor bronze, No. 30, standard wire gauge, as wide as the matrix is intended to be, should be bent around the pine stick and overlap about one-sixteenth of an inch. The threaded post should be set with binding wire or a clamp made of piano-wire, about one-eighth of an inch from one end, B, of the strip of bronze, and soldered with silver solder. The post in which the screw turns free is set near the other end, C. The distance the post, B, is from the end of the strip is the amount of variation in the size of the matrix. German silver No. 16, standard wire gauge, answers nicely for the threaded post; the other post may be lighter, No. 19. The screws are of steel, and have a square head which will fit a large-sized watch-key, which after filing off the ring may be fastened in any kind of a handle. The screws should generally be about seven-sixteenths of an inch in length over all, D.

When the posts have been soldered, the matrix should be bent around the pine stick and secured with the screw. The cervical margin can now be trimmed to follow the line of the gum, with a corundum point or finishing bur, and the matrix polished. The threaded post must be set distally, so that the screw-head may be directed mesially, and it is most conveniently turned with the key when it is on the buccal surfaces of the teeth. The cervical and all margins of cavities which will come close to the matrix are best prepared before the matrix is adjusted. This done, the matrix is secured on the tooth by closing the band with the screw, after which the rubber dam is passed over it and such adjoining teeth as may be thought best. The dam will readily pass between the matrix and approximate teeth, and, with little discomfort to the patient, can be easily carried below the cervical edge of the matrix. The preparation of the cavity can now be completed. The bronze being soft and tough, can be burnished to mould the filling, as the conditions present demand, care being taken that a little space is left to allow the filling material to overlap all margins. The removal of the matrix requires no particular care. The screw is disengaged from the threaded post, the ends are spread apart, the matrix is pushed slightly towards the tongue, and is then easily withdrawn.

THE TEETH OF DIFFERENT PEOPLE.

BY PARSONS SHAW, D. D. S., MANCHESTER, ENGLAND.

In disregard of the great law that we should "not judge by appearances but judge righteously" (which is a fundamental one in all scientific investigations), perhaps there is no subject on which there is more dogmatic assertion, with less knowledge of the facts, than on the conditions and comparative value of the teeth. And these assertions have become incorporated into our text-books, and pass current, when they are in most cases merely the result of ignorance, prejudice, and misrepresentations for a settled purpose. As I have had opportunities for observing the teeth of Americans in different parts of the Union, and the teeth of people from different parts of Europe, as well as some of the woolly-haired Africans, I will record my observations and conclusions, and hope that others will follow with their experience until this matter is settled on a solid basis.

It is a favorite way in Europe of accounting for the superiority of American dentistry by assuming that dentists are more needed in America than elsewhere, owing to the more rapid decay of the teeth. When we get to understand the meaning of this assumption, we find it to be only a

part and parcel of a great system. It is taken for granted by European authorities that everything must be wrong in America, as the government, fiscal policy, social life, religion and morals are, according to their views, all based on a false foundation. And then it is argued that, as under pernicious institutions no people can prosper, it is, therefore, natural to find a gradual decay of the Americans, politically, morally and physically. The few who do not quite condemn American institutions attribute this assumed deterioration to the climate; but the degeneration of the Americans in general, and of the descendants of the Puritans in particular, is almost universally taken as a settled fact. The reason why it is not more apparent is owing, so we are assured, to the new blood brought in by emigration. When the average American comes in contact with these views he has no suspicion of their real meaning, and is quite too apt to adopt them without reflection. Or if he begins to make investigations it is usually among his foreign patients, by whom he is misled either through their preconceived notions of American degeneracy, or their conceit. It comes about in this way. We know that teeth decay a great deal before patients are aware of it, and it is a common thing for them to say their teeth have gone within a few months, when the slightest investigation shows they have been decaying, more or less, for years. It is a common experience in my practice for a foreigner to assure me his teeth never decayed until he came to England, simply because it was after he came here that he happened to have his first toothache, and never had been to a dentist to ascertain the real condition of his teeth. For the same reason the Englishman is certain his teeth never decayed until he went to live somewhere out of England; and the man from the South is equally certain his teeth were all sound when he came to the North; and the man from the North avows he never had a speck of decay on his teeth until he went into the South; and so it goes all round the compass. It is, therefore, no evidence when the foreigner tells the Americans his teeth were all sound until he came to America, and that teeth do not decay in the "old country" as they do there. His assurances are based upon ignorance of the progress of decay in his teeth, and of the condition they would have been in if he had never emigrated, strengthened by the preconceived notions which grew out of his patriotic bounce. In so readily accepting these errors I am not certain there is not a good deal of something of the same sort of unconscious patriotism in the American who takes for granted the foreigner's view of American teeth. I suspect the logic is something like this. Its postulate is the common and vulgar notion that a higher civilization is only obtained by a corresponding loss of physical powers. Therefore, if we assume that the American has a higher civilization than that represented by the foreigner who comes to his country, it follows on his postulate that his teeth decay sooner.

Just as it is a mistake that higher civilization implies physical degeneracy, so it is an error to assume that the classes who hereditarily live by labor in old and settled countries are physically superior to the hereditarily cultured classes. It is only in new communities that all sorts of people are mixed up together, and wherever the people are settled down in to the regular routine of life they are eventually divided into classes (not by the possession of wealth, patents of nobility that are real or assumed, or by any other artificial means, but) by a course of natural selection based upon immutable laws. There are instincts, modes of thought, motives, ideas of what promotes happiness, and dietary and sanitary regulations which purify and elevate; and there are those which not only prevent any elevation, but must degrade. So that in the same community we find people with entirely different modes of thought, incentives to action, and consequent results. It is inevitable, therefore, that in the long course of time different classes should arise with fixed types, which are intensified by the constant intermarriage of those of the same blood, social standing and character. No American who has not come in contact with the various classes in Europe, and not had an opportunity to study their characteristics, can have any idea of the radical difference between them, owing to the wide difference in the prevailing notions which govern all their actions. There is but little community of sentiment, except in their common humanity. This is almost at once revealed to those who have to treat their diseases. The superior classes are invariably grateful, patient, and strictly obedient to all commands as to diet, sanitary arrangements and medicines, while the lower orders seem to hate obedience, and systematically disregard the most imperative instructions, especially as to diet, and preclude the possibility of the exercise of any feeling of gratitude by the almost invariable habit of endeavoring to make it appear, in every transaction of life, that it is they who are conferring the favor. The inevitable result of the natural selection I have named is that those who obey the mental, moral and physical laws of life arise to the top, while those who habitually disregard either set of these laws sink to the bottom of the social scale. It is true there are at work, at all times, unexpected and unpreventable circumstances which appear to set aside this natural selection, if not altogether to defy it. And the struggles of such of the lower orders as have got elevated out of their real sphere by some stroke of luck, to maintain themselves in their unnatural position by the innumerable devices to which they resort, are apt to lead their less fortunate and unreflective fellows of the same order to imagine that men are lifted up by means of these low devices and mere assumption. But they are only a part of the system which eventually still more degrades; and it remains none the less certain that when a class rises to the top of the social scale and remains permanently there it is because they obey, on the whole, the great moral

and physical laws; and that the lower classes remain such because they are wedded to opinions, appetites, instincts, prejudices, modes of thought and ways of life which cannot elevate, but must degrade. In accordance with the foregoing, I have found that those who belong, by inheritance, to the upper classes, all over Europe, are in almost every way the superiors, mentally, morally and physically, of the permanently lower orders. The English gentleman has always beaten the common fellow at everything, especially in roughing it in the new countries to which all classes have emigrated from the beginning of the English colonies. It is because the descendants of the very best blood of Europe, and of England in particular, have dug and delved and sowed and reaped from Maine to Georgia for over two centuries, and still give dignity to labor in all parts of America by uniting it to refinement and intelligence, that we have the elevating tone of American thought and feeling. You cannot create a "gentle" man except out of a refined and gentle nature. Wealth, the tailor, the University, and "society" can only put on a transparent surface polish if there is not the hereditary elevating instinct which nothing can smother; and the snob's descendants invariably go back, sooner or later, to the class from which he sprung; when, for a certainty, their last state is worse than their first. It is, therefore, an entire mistake to suppose the peasantry of any country have better teeth than the gentry, or are in any respect their superior. It is quite the other way. The English are divided into the upper, lower, and middle classes, or, as Adam Smith puts it, into those who live by rents on land, those who live by labor, and those who live by profits. The upper class is distinguished by simplicity of manners and of personal living, cleanliness, high integrity, and great frugality. With plenty of fresh air and exercise, and a simple diet, they are very strong and have excellent teeth. The people of the lower class are uncleanly, eat their food miserably cooked, are passionately fond of dainties, are imprudent in all their doings, and so improvident that, as a rule, they cannot lay out their earnings so as to make them spread over a single week, but want food before the new wages come in. The agricultural laborers get plenty of fresh air, and from dire necessity have a simple diet, and in consequence somewhat overcome the evil results of their instincts, and have fairly good teeth. But the artisans among the lower orders have not these compensating benefits, and the effects of their faults are intensified by living in large towns, working in impure air, and above all, by having good wages to spend in indulging their appetites. The consequence is that they have bad teeth. The middle class is a thoroughly mongrel race, made up from all ranks and classes. It consists of the merchant, farmer, professional man, tradesman, etc. This class is as mixed in England as in the colonies. The uncertainties of all profit causes immense changes in each generation. The great merchant may be the son of a farm laborer

and his clerk may be grandson of a lord. It is, therefore, but natural that we find in the middle class all sorts and conditions of teeth, from the very best to the very poorest. It will be a mistake to suppose that because the teeth are bad we can say the patient is from a low family, for I have known poor teeth to go with the longest pedigree; and among the artisans I have seen splendid teeth. It is only the general average I have been giving. The Welch peasantry have the poorest teeth I have ever met in Europe. They are pearly and pretty in youth, but soon decay. The lowest class of Germans have large teeth, as do most inferior people, which serve them fairly well so long as they live out of doors and eat wholesome bread. But they are deficient in vitality, have but little stamina, and if attacked by decay crumble away rapidly. The upper class of Germans have good teeth, but not so vital as the English or the Americans. The French of Gothic origin (see Magitot) have teeth much like the Germans; but those of Keltic origin have vastly better teeth. There cannot be a doubt that among the pre-historic people of Europe the Kelts had the best teeth. The Irish are a curiously mixed people. The peasantry, who are the descendants of the aborigines, have coarse, large, and not good teeth. All around the coast of Ireland there settled in ancient times, the Northmen, and their descendants have good and strong teeth. Then a very much larger proportion of the Irish are English in origin than is admitted, and their teeth are much like the English. The North of Ireland is almost wholly of Scotch descent, and here we find good, strong, and vital teeth. There is even a more marked difference in Scotland than in England between the different classes. The Scotch peasant has fairly good teeth, and better than his English neighbor. Among the higher classes of Scotland we find the teeth fine in form, compact in structure, and highly organized. In all probability the aristocracy of Scotland is the finest race in Europe. The Danes, Swedes and Norwegians, being a superior race, have fine teeth. The Spanish teeth decay early, and the Portuguese still sooner. The Greeks (I mean the real Greeks) have good teeth, as a rule. They compare well with the English, and so do the Turks and Arabs. What little experience I have had with the woolly-haired Africans shows they have very poor and dark yellow teeth, not white, as is so persistently asserted, with unusually large roots. Now, how do these teeth compare with the Americans? No man who will take the trouble to make careful observations will, I think, come to any other conclusion than that, on the whole, the teeth of the Americans, for strength, fineness of structure, and vitality, are decidedly superior to those of any other people. And conservative dentistry flourishes in that country, not because the teeth are unusually bad and need more than usual attention, but from the very opposite reason. It is because the teeth of the Americans present a very much larger proportion, than that of other people, of those which experience shows

the dentist can save by proper operations. The great drawback to conservative dentistry in other parts of the world is found in the fact that the teeth are, excepting among the better classes, relatively poorer, and can not be saved by the same skill as can the American's. There are more dentists in America because of the general superiority of the teeth, the natural desire to save them, and the comparative ease with which this is accomplished. And dentistry will remain, in most other parts of the world, because of the nature of the teeth of the mass of the population, to a very great extent very much what it always has been, the means for supplying the inevitable false ones.—*Archives of Dentistry*.

THREATENED MANIA FROM RETARDED WISDOM TEETH.

DR. W. T. LA ROCHE.

At a meeting of the Odontological Society, April 24, 1883, (reported in the *Dental Cosmos* for October, 1883, page 540), Dr. Wm. Jarvie, of Brooklyn, mentioned a case brought to his notice by a physician. The patient was a gentleman about thirty years of age, in robust health, and of good habits. In January or February of the preceding year he seemed to have become somewhat morose, rather ill-tempered and quick to take offense, and from that the symptoms gradually ran into those of acute *mania*, so that he was not to be depended upon at all, and required a nurse with him all the time. The gentleman was advised by his physician to visit Bermuda for change of air and scenery. He did so, and returned in pretty much the same condition as when he went away. The family and his physician were unable to get any clue whatever as to the cause of this malady. An article had been published in the *Sunday Times* in regard to mania arising from disturbance of the tooth-pulp, and since reading that article the gentleman's family had recalled to mind the fact that at the very time when this disturbance commenced he went to a dentist to have a tooth filled. The dentist removed an old filling, and told his patient at that time that there was a little pus and blood exuding from the pulp-cavity. The operation was quite painful, and there was a great deal of pain in the tooth for a week afterward; also disturbance of the *aural nerves*; his hearing was affected, and he was troubled with neuralgia on the same side of the face.

A similar case is on record where a Boston gentleman, thirty-three years of age, from disturbance of the pulp, became quite insane, and on removal of the tooth in that case complete recovery followed. I men-

tioned the case of a patient at that time in my care, who had been in my hands for nearly two years, and whom I was treating for retarded eruption of the wisdom teeth. A number of physicians diagnosed his disease as brain trouble *per se*, and treated him accordingly. In my remarks I said that the above cases showed that the *nerves* may be very seriously affected by the eruption or diseased conditions of the teeth. I was asked by a member if the gentleman was insane. I answered that he was very near it, and that the gentleman himself thought he would become insane, and that his physician, Dr. Dieffenbach, had said to me, "This man will be a subject for the lunatic asylum if he is not relieved of those wisdom teeth." I promised to give the Odontological Society a full history of the case at some future time. His long-protracted illness commenced with pain in the head in July, 1878.

My attention was first professionally directed to the case of Mr. W—— by being requested to extract a carious left superior sixth-year molar in December, 1881, but on account of the very delicate condition of the patient I did not extract it till about the 1st of February, 1882, some five weeks later. The pulp had been devitalized and the tooth prepared for filling while he was in the country, but on account of the dentist attending to it having been unexpectedly called away the operation was not completed. I had filled several teeth for Mr. W—— when he was twelve years old, and I found them in good condition. I said to him, "You have lost all your wisdom teeth except one?" His reply was, "On, no; I have never had a wisdom tooth extracted." I made a more thorough examination a few days later, and, taking his age into consideration (he was in his twenty-seventh year), I became convinced that the real source of his long and severe illness and brain trouble was caused by the retarded eruption of the wisdom teeth. Knowing that he was at this time in the hands of a specialist who was treating him for brain disorder, I told him at once that I did not believe that his trouble was with his brain. This surprised him greatly. I told him I was sure his brain trouble was caused by reflex nervous action from the source above stated. At this time but one of his wisdom teeth had normally erupted; this was in the right superior maxilla. Judging from the griping pains in his jaws, extending therefrom to the back of his head, and locating the non-erupted wisdom teeth, confirmed me in the opinion that my diagnosis was correct. I refused to take his case as long as he was in the hands of a specialist, being treated for brain trouble. This point being satisfactorily settled, I then undertook his case. He told me that Dr. Wm. A. Hammond concurred in my diagnosis. In each case I found it impossible to remove the wisdom tooth without first removing the twelfth-year molar. My first operation was to extract the upper left twelfth-year molar, hoping thereby to afford relief by so doing. This was accomplished in April, 1882. At the same time I endeavored to

extract the wisdom tooth also, but on account of its position, and the patient being so weak and delicate, I did not succeed. It was not deemed advisable to administer an anæsthetic, and without one the shock was to be dreaded. It was not until the following December, seven months later, that I was able to extract this left superior wisdom tooth, during all of which interval he was in very great pain and suffering constantly from excessive nervous prostration. This tooth had three diverging roots, all of them largely exostosed. The effect of the operation was almost immediate, the benefit being very marked, and he was soon able, for the first time in three years, to resume business and take part in social enjoyments. His health continued good until his return in September from the Catskills, where he had spent the summer, when he reported to me that he was again suffering in a manner similar to that which he had suffered previous to the extraction of the above-mentioned tooth. I found on examination that the right inferior wisdom tooth was giving him trouble. Previous to his going away I had told him that, at the first indication of any trouble in the lower jaw, I would advise the extraction of the twelfth-year molars at once. I now reiterated this advice and urged its immediate adoption. Hoping to relieve the pressure and mitigate the pain, the right inferior twelfth-year molar was extracted in October, 1882; but to my disappointment the operation did not afford perceptible relief. I now hoped that the wisdom tooth would erupt in the normal way, but it did not. After a few weeks the absorption of the surrounding gum-tissue revealed the exact position of the retarded tooth. I found it lying diagonally across the ramus, a position from which it was very difficult to remove it. I had much difficulty in finding an instrument that would grasp the tooth. I finally removed it on December 24, 1882, an interval of six weeks. This tooth was also bifurcated and exostosed. The effect of this operation was not what I had hoped for, the pains continuing, but changing to the left side. Owing to the very nervous and prostrated condition of the patient I was obliged to defer for a few days the extraction of the left inferior twelfth-year molar. This was done in February, 1883. At this time I did not cut to find the wisdom tooth. I could see no external evidences of it. As before, I waited, hoping relief would follow, but, as the pains continued without mitigation, shortly thereafter I made an examination and struck the wisdom tooth deeply imbedded in the ramus. It really appeared as though the tooth tried to go out through the facial side of the ramus. The patient continued to suffer intensely. I really thought he *would* lose his mind. One of his physicians had previously said to me that if the cause was not removed he would certainly become insane. He suffered so much that, at his urgent request, I consented to attempt the extraction of the tooth in May,—some twelve weeks later,—though feeling almost certain that the attempt would be fruitless

without an anæsthetic ; and this proved to be true. His very delicate condition rendered it impracticable to administer an anæsthetic, or to do anything to cause a sudden shock. This factor in the case greatly hampered me all through. His eyes, too, became affected sympathetically. Sometimes he could not see at all during the spasms of pain. He would be almost delirious at times with the severe pain in the back of the head. As he described it, his head would be sore to the touch. With reference to anæsthetics, Dr. Hamilton, who at one time had been his physician, had refused to sanction their use in his case. While I duly respected the high authority of this opinion, and had been governed by it, nevertheless I did not concur in it. Finally, on or about the 9th of June, I succeeded in extracting this tooth, the patient having been first placed completely under the influence of ether. I was assisted in this operation by his attending physician, Dr. J. F. Davis. The tooth was a very remarkable one, both as to location and formation. As to location, it was inclined, by reason of its extreme exostosed condition, to make its appearance through the maxilla on the facial side ; in fact, after the extraction, the face there was extremely sore, a slight protuberance showing. As to formation, it was bifurcated, and its exostosed condition had united the bifurcation, so that the nerve-currents were, by the progress of the exostosis, partially cut off. I dressed the aperture carefully every day with a weak solution of carbolic acid, alternating with permanganate of potash and wine of opium ; but on account of the terrible strain upon the parts attendant upon the great force necessary in drawing out the inverted wedge-shaped exostosed roots, there was much inflammation to contend against. By the latter part of June he had so far recovered that he was able to leave the city for the Isle of Shoals, where he remained in a comfortable condition until about the 6th of the following September. Shortly after his return home he complained to me of pain in the same side of the face. From about the second week in September he had a severe relapse, and at times, as before, was almost crazy with pain. About the 1st of November following I was obliged to use the engine bur for the purpose of re-opening the aperture made by the extraction of the wisdom tooth. This I did thoroughly, breaking down the septum between the wisdom tooth and the twelfth-year molar. Prior to this, on account of the severe prostration of the patient, I had only partially opened the cavity. After the operation he revived again, gained strength, and we both thought he was now going to be well ; but, to my surprise, he was again attacked with pain in the superior right side, in the only normally-erupted wisdom tooth that he had had. As I have before stated, I had extracted the right inferior wisdom tooth and twelfth-year molar, consequently these superior teeth had no antagonists. Elongation in both teeth was now apparent. A very slight fissure exposure was found in the wisdom tooth

and the dentine exceedingly sensitive. Both teeth became very sore, and the least pressure of the finger was painful. I therefore advised the extraction of both; nevertheless, I could not persuade him to have it done without an anæsthetic. During the next five months his health was very poor and his general condition low. He was in the care of Dr. E. B. Pardee, who was at first averse to giving him any anæsthetic, but finally, as he had made some improvement under his treatment, on the 30th of May he assisted me in administering the nitrous oxide gas, and I extracted these teeth. Thus after a series of operations and treatment by me extending over a period of three years, and treatment by many physicians—some ten, I am informed—for a period of more than six years, the causes having been fully removed, the brain trouble ceased, and has not returned.

PRESIDENT JARVIE. In regard to the case which I reported about two years ago, and which is referred to by Dr. La Roche, I would say that there has been no improvement in the condition of the patient since that time. — *Extract from N. Y. Odontological Society Proceedings—Dental Cosmos.*

DENTAL HYGIENE.

BY G. L. CURTIS, D. D. S.

Read at a Union Meeting of the Fifth and Sixth District Dental Societies.

As is well known, a judiciously applied stopping will arrest decay and save a tooth for years of usefulness to its owner, but a course of treatment that will effectually prevent the first appearance of decay is as yet almost unknown, or at least unheeded, in our profession.

Constitution, health, nutrition, or habits of living, all bear so directly upon the teeth and their construction, that in this age of so-called civilization, with its artificial means of living, the dental organs have degenerated, until they seem almost beyond the reach of remedial agents. Local treatment, however, and constant care in daily life, will accomplish much.

Cleanliness, which is indispensable, and is certainly the most important remedy in preventing disintegration of the teeth, stands first, and the dentist cannot too earnestly impress upon the minds of his patients the importance of this great fact. Neglect this, and the advantages of good inheritance, natural strength, and the most skillful treatment, are all jeopardized.

The dentist should strongly urge the use of the brush after each meal, and before retiring, teaching the patient how to use it so as to get the upward and downward motion that enables the bristles to pass between

the teeth and remove all deposits of food and calcareous deposits, and at the same time polish the approximating surfaces, instead of the lateral motion more commonly practiced, in which the labial surfaces only can be reached. Many would be benefited by having a proper brush selected for them, and should be instructed as to what dentifrice is not injurious.

The importance of the use of the quill pick, and of the floss silk, are second only to that of the brush, and for the purpose for which it is used the common quill pick is the best. The significance of all this, and the great importance of keeping the teeth clean, should be impressed upon the minds of children as well as of adults, and with all the earnestness possible. With ænemic and delicate persons it is often necessary to resort to general treatment. In prescribing medicine, which by direct contact would be injurious to the teeth, due care should be exercised, as we too often see the effect resulting from neglect in this particular, on the part of physicians. Alkaline washes are very beneficial in systems where the saliva is rendered acid in its reaction, and should be freely used. Our attention is often called to one or more teeth which yield readily to the secretions of the mouth, and become so sensitive that pain is produced whenever an attempt is made to brush them. In such cases lime water, bicarbonate of soda, or precipitated chalk, is useful. The latter should be placed around the teeth on retiring, and allowed to remain till morning.

To strike at the root of our subject, education is first essential, and every mother should be cognizant of the necessity of giving herself the proper care during gestation, and of taking the requisite amount of exercise and suitable food to develop the bone tissue of her child. This, too, is particularly important during the period of lactation, and the development of the permanent teeth.

In conclusion, we believe it is to the children and their teeth that we should direct our chief attention, and that in the carrying out of the best treatment known to us, together with what suggestions we may be able to get from those around us, lies our greatest success.—*Independent Practitioner*.

RE AMALGAMS.

To the Editor of the "Journal of the British Dental Association":

SIR,—Your correspondent "Common Sense" has hardly grasped the difficulties and peculiarities of this subject. It would appear that he, like almost every other dentist, does not take the trouble to test thoroughly any amalgam he intends to use, before using it in the mouth. The pretty names given to amalgams by some makers serve the purpose of a

decoy, not to mislead the patient, but to persuade the dentist who does not test his amalgams, to buy them, and occasionally to write wonderful testimonials, which to one fully experienced in the matter, are simply confessions of ignorance. The properties of an amalgam depend only to a limited extent on its general composition, and a trace, for instance, of palladium in an ordinary amalgam will spoil it completely, even if the quantity is so small as to be unnoticed in any ordinary assay.

It is a curious and still unexplained fact that palladium, which, when used alone, makes one of our most perfect amalgams, is, when alloyed with other metals in any and every proportion, destructive to all good properties which may be possessed by the same metal or alloy before the palladium has been added. The exhaustive series of experiments I made to decide this point, the results of which were published in the *British Journal of Dental Science* some years ago, are, I think, conclusive against the admission of the slightest trace of palladium in any amalgam alloy.

As palladium is present in a large proportion of the samples of silver and gold in commerce, and as its presence is not objectionable for any other purpose, we have here a weak point in all amalgams, and it becomes a question of testing every melting and every ingot by careful packing and discoloration tests. In case of a failure, partial or entire, there is no help but to throw the whole into the scrap for refining, with a loss of about 50 cent. on its intrinsic value, and to obtain a supply of the necessary metals from some other source and try again. Few makers will face the trouble and expense of this, and the consequence is that few samples of amalgams are either uniform or reliable. If a dentist learns the component parts of an amalgam he thinks he can make it, and rarely takes the trouble to find out that he cannot until his fillings begin to fail, when, as a rule, he blames the recipe and flies to another unknown alloy which he has not learnt how to use, and so the trouble goes on, the amalgam, as usual, getting all the blame which rightly should be given to the operator. Many of the modern alloys contain more or less zinc, the fashion in this metal having apparently been re-imported from America, with the difference that many alloys with fine names are the same as older and discarded ones, the only difference being that they are sold at a very fancy price. As things are tending, it would appear that if an enterprising man were to sell crystals of tin or zinc as "cohesive diamond chips" at £4 per oz., he might perhaps attain both fame and fortune.

If "Common Sense" will have the common sense to expend some little time and care in learning the peculiarities of, and best system of working any one amalgam, he will do more service to his reputation and patients than if he tries all the most expensive and wonderfully advertised amalgams, without learning how to best use any one of them.

If an operator can obtain experience enough with any alloy to make,

with certainty, permanently water-tight fillings in cavities which are shallow, awkwardly shaped, and at least three-eighths of an inch in diameter, he will be able to make amalgam fillings which will show a record of good service which the best operator in gold now living will not be able to match. If an operator cannot make color-tight fillings in difficult cavities with any material he uses, the sooner he discontinues its use the better for himself and his patients. If he fails, it is always well worth while for him to know whether the failure is due to himself or to the amalgam.

THOMAS FLETCHER.

ANÆSTHETICS.

The *Canadian Practitioner*, in an able editorial on "Our Choice of Anæsthetics," concludes the article with the subjoined sensible advice and rules:

It should be distinctly understood that in speaking of safety in the administration of any of these agents, or combinations, we used the word purely in a comparative sense, as absolute safety in the production of profound anæsthesia does not exist. There is in every case danger to life, and every minute of the continuance of the unconscious condition adds to such danger. Both principal and assistants should recognize this very important fact. The man who administers the anæsthetic should have nothing else to do, and should confine his attention to his own work and not the operation. The surgeon should have everything in readiness, and in its proper place beforehand, and should refrain from everything beyond his legitimate work which will consume precious moments, whether it be imparting clinical instructions, swearing at assistants, engaging in ordinary conversation, or (as not unseldom happens) perpetrating jokes, which, on their merits, are generally most execrable, and are always in exceedingly bad taste. We will summarize by giving certain rules, as follows:

1. In ordinary operations give ether, or a combination of two parts of ether and one of chloroform.
2. Give chloroform where there is disease of the kidneys or a tendency to bronchitis.
3. Give chloroform to young children.
4. Give chloroform in ordinary cases of labor when required.
5. In cases of labor, where the patient has become much exhausted, and is in great fear, give ether in performing necessary obstetric operations.
6. Never give chloroform to a patient in a dentist's chair, or not in the recumbent position.

7. Do not keep a patient under an anæsthetic one minute longer than is absolutely necessary.

Let the administrator of an anæsthetic attend carefully to his own work, and nothing else.

DR. LAURENCE TURNBULL, in his pamphlet on "The New Anæsthetic," after giving a very favorable opinion of coca and cocaine, states wherein the new agent has failed to perform all that was expected of it, and calls attention to the *old anæsthetics* by the following observations:

First, the local anæsthetic upon the skin or on any part of the body covered by skin, as on tumors, or on the ear where there has been no perforations or abrasion of the skin or membrana tympani so as to expose the mucous membrane.

Second, in gynæcology. In this department it has but as yet had a very limited successful application, and has in several instances failed to produce sufficient deep-seated local anæsthesia, except by hypodermic injection, and even when this is employed the area impressed has been very limited unless more than one injection is employed.

In ophthalmology, dilatation of the pupil *ad maximum* was not produced when desired in every patient; it cannot take the place of atropia or esersine in examinations of the eyes to correct abnormal conditions, fitting of glasses, etc.

In deep-seated operations on the eye it has not been in all cases as satisfactory as the bromide of ethyl, or Squibb's ether. The hypodermic injection of the orbital tissue has been at times attended with abscesses and other disastrous consequences, and even in cataract operations it hinders the expulsion of the lens.

In the excitement over the new local anæsthesia we must not forget our old and well-tried friends, nitrous oxide gas for dental operations, bromide of ethyl for all operations of minor surgery in the office, and (Squibb's) ether for prolonged operations. * * * *

Chloroform has been found the best anæsthetic in the army and navy during war, and to insure a quiet sleep in very severe and protracted operations, the addition before inhalation of a hypodermic injection of morphia from one-sixth to one-eighth of a grain.

There is no anæsthetic for capital operations that can take the place of chloroform during the intense heat of the summer in the far South, or in India.

Chloroform should never be used in the North, except in rare cases; even in England the indiscriminate use of it is giving place to pure ether, or the A. E. C. mixture, which is composed of one part by measure of absolute alcohol to two parts by measure of chloroform and three of ether (Squibb's.) The mixture should be prepared with care, and never in

too large quantity, and kept from the light (in a bottle with a glass stopper in a tin case). * * * *

But with all these anæsthetics, precautions are necessary to be observed in their administration.

1. A very light meal should be taken before their use, as a biscuit or a cup of milk with a small piece of stale bread, several hours before. The pulse, heart, and secretions from the kidneys should always be examined before the operations.

2. All tight-fitting garments or artificial teeth must be removed.

3. Never give chloroform in any other position than that of the recumbent one, and drop it on a flat surface with abundance of air.

4. With ether and bromide of ethyl the anæsthetic has to be crowded on the patient, with very little mixture of air, but never use more than is necessary to produce anæsthesia.

5. Notice the pulse and respiration. * * *

THE POISONOUS EFFECTS OF AMALGAM FILLINGS.

Editor "British Journal of Dental Science":

The paper of Dr. Talbot* on this subject reads like a paper written fifty years ago. If he had taken the trouble to test his own instructions for mixing, he would have found that it is impossible to squeeze mercury out of the mixture. What he mistakes for mercury is a solution of some of the metals which should be left in the alloy, the removal of which almost invariably damages the amalgam. He would also have found that it is simply impossible to squeeze the surplus mercury out of any compound amalgam, the quantity of mercury left in being quite double what is necessary to make a good amalgam. The "bond of union," if the mercury is in proper proportion and not in excess, is most certainly strong enough to prevent evaporation at ordinary temperatures. My own experiments with amalgams in the steam pipe of a high-pressure steam-engine showed conclusively that there was no loss of weight in three months' exposure; on the contrary, every plug showed a trifling increase in weight owing to surface oxydation.

Dr. Talbot evidently puts all amalgams in the same basket, and believes

*Read before Central Illinois Dental Society. [In referring to Dr. Talbot's article, the *Dental Register* for June says: It is not at all unlikely that Dr. Watt may try his hand again at the amalgam question, cause why, the *Ohio State Journal* for March contains a curious article on "The Poisonous Effects of Amalgam Fillings," and the *Independent Practitioner* for May a reply to it in the nature of "Straining at a Gnat." Now's the time for Uncle Jerry to get in his work.]

that all amalgams shrink. If he had ever experimented with precipitated silver, he would have been more cautious and more correct in his statements, and as to the question of porosity of plugs, it is quite possible to make either an amalgam or a gold plug porous to any extent, as it is also possible to make either material water-tight.

Dr. Austin's idea of lining a cavity with tin to take up surplus mercury is simply a makeshift and risky way of getting rid of what ought never to have been put in the amalgam, and the statement of Haswell quoted, that "amalgams expand," is simply a proof that his experiments have been very limited and confined to one or two metals only.

The bulging of a filling, which Dr. Talbot apparently takes as a proof of shrinkage, he will find has nothing whatever to do with this. If he will make a plug shaped as a true cube, he will find it will slowly bulge on all six sides, and the corners will draw inwards, showing a strong tendency to assume a globular form. That the amalgam is apparently hard proves nothing; ice will flow under pressure, and the tendency to assume a globular or spheroidal form after hardening, varies with every different alloy.

That mercurial poisoning may occur in some cases where plugs are made with the grossest carelessness and an immense excess of uncombined mercury, may be possible, although I have never once, in twenty years' practice, seen such a case; but this, even if it does occur, is a proof, not that amalgam *per se* is in fault, but that the dentist does not understand the material he is using. Any dentist, who puts in a plug saturated with uncombined mercury, had better discontinue using all amalgams until his education becomes more complete.

THOS. FLETCHER.

"CONCERNING BILLS."

Editor "Journal":

Reading the article in the April number of the *Journal* on the above subject, I felt like asking the question, Why should the dentist do a credit business? I have had some business experience outside of dentistry and sold goods "on time." An old gentleman, a retired merchant, used often to shake his head at us and say very wisely, "You had better mourn *over* your goods than *after* them," which I think is true in almost all departments of business, dentistry included. The rule should be, pay when you get your goods, pay when the work is done, pay when the service is rendered; "short reckonings make long friends."

We busy dentists cannot afford to spend our time looking up the financial standing of patrons, especially while the fees received for our services are as small as they are in most offices. We might better be spending

our time in study, sharpening our instruments, digging some of the dirt out of the dark corners of our office, or in recreation, or in work for the good of the public outside of our profession, than to do work and take "trust for pay." My experience has been that dental work paid for gives much better satisfaction than that owed for, this is especially true of plate work. A set of artificial teeth made as near perfect as may be, in nine cases out of ten will not "fit" until paid for. Years ago this used to astonish me, for I could not think my patients dishonest, but by careful observation I find that trust customers invariably fall into the habit of trying to see if there is not "something wrong about" this set of teeth that ought to be "fixed" before they are paid for; so the jaw is run forward to the right, to the left, backward, and in every conceivable way to "try them," with the natural result of knocking them loose, and in some this seems to become a habit; while if paid for they would be trying to see how well instead of how badly the teeth fit. Hints from some of those of experience in the dental profession may be of service to those just beginning, but much must come from experience, which may be expensive, but is genuine and beneficial, if one has the tact to utilize it.

VICKSBURG, Mich.

W. W. SCOTT.

WHAT is the difference between an inventor who gives to the profession a new machine or process, or the author who gives us a new work on surgery or mechanism? If the profession wish to do away with patents, they must also eliminate copyrights, for the oldest work on dentistry is held under restriction, and the latest work fully protected. Is not the hard work of an inventor of a complicated machine, requiring sometimes years of labor and study to perfect, with greater expense than any author is put to, as fully entitled to protection and honorable notice? Upon what grounds are they asked to give their time and money, and what recompense is offered? If the profession wish to bring about such a state of things, they must adopt the system of some European societies, and not only offer honorable notice, but monetary assistance, at least to cover his actual expenses, for patterns, models, etc., cost a great deal to produce. It would not be justice to ask such men as Bonwill, Snow, Lewis, Wilkerson, Starr, Morrison, and many others, to give their labors and great expense for a simple "thank you," and then let the dealers and manufacturers reap the reward of their labors and hard work, while the profession would not get the work supplied to them much cheaper. It is quite time to stop piracies upon patents, and prevent ignorant men from copying some method from an old work, (forgotten by some, or not mentioned to the rising generation at our schools, under the impression that every work-room knows the rule,) and try to hamper every dentist with a royalty like the Goodyear Rubber Company.—*Southern Dental Journal*.

"LIBERTY ENLIGHTENING THE WORLD."

Public sentiment has been thoroughly aroused at last, in favor of the movement toward the erecting of Bartholdi's Statue, "Liberty Enlightening the World," in the harbor of New York. Americans now understand that those among them who subscribe to the completion of this grand work, will perform an act of patriotism, and at the same time one of international comity worthy of the enlightened ideas permeating this nineteenth century.

This new Wonder of the World, which has just arrived in this country, on the French transport *Isère*, is the largest statue in the world. Some idea of its magnitude may be obtained from the fact that forty persons found standing room within the head. A six-foot man standing on the level of the lips only just reached the eyebrow. While workmen were employed on the crown of her head they seemed to be making a huge sugar-caldron, and they jumped with ease in and out the tip of the nose. Fifteen people might sit round the flame of the torch, which elevation can be reached by a spiral staircase within the outstretched arm.



The committee in charge of the construction of the base and pedestal for the reception of this great work are in want of funds for its completion, and have prepared a miniature statuette, an exact counterpart of the original, six inches in height, the figure being made of bronze, the pedestal of nickel silver, which they are now delivering to subscribers throughout the United States for the small sum of \$1 each. Aside from its being a lasting souvenir of this colossal statue, it will ornament our homes and bear testimony that we have contributed to the completion of one of the grandest works of modern times. All remittances should be addressed to Richard Butler, Secretary American Committee of the Statue of Liberty, No. 33 Mercer Street, New York. The Committee are also prepared to furnish a model, in same metals, twelve inches in height, at \$5 each, delivered.

We feel assured our people will be only too eager to testify their grateful sense of the friendliness of this magnanimous offer on the part of the French people, and to reciprocate the kindly and liberal sentiments in

which it originated, by thus aiding in an active prosecution of the labors that may be required to give the statue an appropriate base and pedestal. Now is the time to do it. Whoever wishes to have the honor and pleasure of contributing to the erection of the grandest statue of any age, to say nothing of the sentiment that should be welcomed and encouraged, must act promptly, for the money will be raised as sure as the sun rises. Every subscriber sending \$1 will be supplied with a miniature counterpart of this great and imperishable statue of "LIBERTY ENLIGHTENING THE WORLD."

AMERICAN DENTAL ASSOCIATION.

The twenty-fifth annual meeting of the American Dental Association will be held at Minneapolis, Minn., August 4, 1885. The present prospects are that the meeting will be an unusually large one.

It is hoped that members having any new facts or ideas in regard to theory or practice will come prepared to present them in connection with the section work. Anyone having anything new in the way of appliances will be given an opportunity to demonstrate their use during the half day that will be devoted to clinics.

Minneapolis is a delightful city. The climate is famous all over the world. It is a constant resort all the year for invalid tourists, pleasure seekers, and those in search of new and wider fields for business enterprise. Its famous water power, the greatest utilized in this country; the chain of mammoth flouring mills, the largest in the world; its magnificent private residences and public buildings; its churches, parks, boulevards, bridges, public works, etc., afford abundant sights to enliven the time and make a visit to this beautiful city profitable as well as pleasurable.

As a summer watering place, Minneapolis ranks as the "Saratoga of the West," being surrounded by beautiful lakes, with unexcelled facilities for hunting and fishing, excellent natural drives, superb scenery, including the beautiful Falls of Minnehaha.

RAILROAD AND STEAMBOAT RATES.

The railroad rates have been secured at an unprecedentedly low rate—tickets for the round trip, from New York to Minneapolis and return, for \$24.00; round trip, from New York to Chicago and return, \$18.00; round trip, from Chicago to Minneapolis and return, \$6.00. At present it will be necessary for those wishing these tickets to secure them in Chicago. Later we may be able to make arrangements by which they can be secured at different points east. By sending check for tickets to chairman of committee of arrangements (J. N. Crouse, 2101 Michigan Avenue, Chicago,) the tickets will be promptly forwarded. Negotiations are

pending for rates from other points that the committee anticipate will accommodate all, and more definite information will be given in later journals, and also in a circular sent to every member.

For those who have a week's extra time, we know of no route so pleasant and diversified as the one by the great lakes to Duluth, on the elegant steamers of the Lake Superior Transit Co., one of which leaves Buffalo at 7 P. M., on every day of the week, except Friday.

The commodious state-rooms of the steamers of this company (all of which are outside rooms) are fitted up in the most comfortable manner possible, with stationary washstands, curtains, lambrequins, etc.

The arrangement of berths is on the ocean steamship plan. A cabin passage includes a *berth* in state-room, and not an entire state-room when there are other passengers to be provided for. Each room has accommodations for three passengers, some rooms having three single berths and others a double bed and single berth over head; in a few instances there are rooms with two single berths. The cuisine is a special feature of the steamers of the Lake Superior Transit Company; the bill of fare being universally recognized as the best ever furnished on the Great Lakes.

Passengers can leave Buffalo on Thursday, July 23d; Saturday, the 25th; Monday, the 27th, or Tuesday, the 28th, and reach Minneapolis in time for the meeting. First class fare from Buffalo to Minneapolis, meals and state-room berth included, \$28.00.

HOTELS.

Probably the best hotel in Minneapolis is the "West," built by John T. West, and managed by C. W. Shepherd. This house is claimed to be "the most magnificent hotel structure in the world," and besides being furnished and equipped with all modern appliances and inventions, is thoroughly fire proof. The rates for board will be \$3.00, \$3.50, \$4.00 and \$4.50 per day, according to location and style of room required. As the hotel is now running very full, it will be well to write to the manager and engage rooms in advance.

Rates at other hotels as follows: Nicollet House, \$3.00 per day; National Hotel, \$2.00 per day.

ATTRACTIONS AND EXCURSIONS.

Come equipped with guns and fishing tackle. While the interest and benefit of the meetings, the attractions of the trip, and the beautiful city where we meet may satisfy many, it may not occur to all that they will find themselves in Minnesota, in one of the finest of hunting and fishing countries. Minnesota is especially famous for its prairie chicken and grouse shooting, and its fine fishing grounds. It is estimated that there are no less than 10,000 lakes dotting the State.

If one wishes a still greater variety of scenery, to see a new, wild and

picturesque country, to draw out the big brook trout, the black bass and the mighty muskalonge from the cold waters of the Lake Superior region—in fact, to enjoy the finest fresh-water fishing in the world, a round trip ticket from Chicago to Ashland and return will be furnished for \$10.00.

A still greater attraction (if more were needed), is offered in shape of a ten days' excursion to the far-famed "Yellowstone National Park," immediately upon close of the Association, provided a sufficient number send in their names to warrant the securing of special rates and special cars. The committee believe that when so far on the way as Minneapolis, many will wish to avail themselves of this opportunity of seeing the grandest scenery in the world. The entire expense for the round trip from Minneapolis, including rail transportation, Pullman sleeping-car fares, meals on Northern Pacific dining cars, hotel accommodations, five days in the Park, and stage transportation, will be \$120.00. A circular describing the magnificent scenery in full will be sent to every member of the American Dental Association at an early day. Others than members, who contemplate going, will receive the same by making application for it.

Come one, come all, and bring your wives along. It will be a trip that ladies will enjoy. Those wishing to go to Yellowstone Park will please send in their names at an early day, that all arrangements may be speedily and satisfactorily completed.

For further information address J. N. Crouse, 2101 Michigan Avenue, Chicago, chairman of committee of arrangements.

DENTAL SOCIETY MEETINGS.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The third regular meeting of the National Association of Dental Examiners was held in Tulane Hall, New Orleans, on Tuesday, March 31, 1885.

The State Boards of Ohio, Indiana, Illinois, Michigan, Georgia, Louisiana, South Carolina, Kentucky, Mississippi and Maryland were represented by the following gentlemen:

J. Taft and H. A. Smith, of Ohio; S. T. Kirk, of Indiana; A. W. Harlan and Geo. H. Cushing, of Illinois; J. A. Robinson and A. T. Metcalf, of Michigan; G. W. McElhaney and J. H. Coyle, of Georgia; J. S. Knapp, L. A. Thurber, O. Salomon and J. R. Walker, of Louisiana; G. F. S. Wright, of South Carolina; A. O. Rawls, of Kentucky; A. A. Dillehay, R. J. Miller, W. T. Martin and W. H. Marshall, of Mississippi; Richard Grady, of Maryland.

The greatest harmony prevailed in their deliberations, and after the fullest consideration the following resolutions were adopted :

Resolved, That this Association recommends to all State Boards of Examiners that registration should be made with both the examining boards and the clerks of the county courts.

Resolved, That this Association thinks that all examinations of candidates by State Boards should be conducted principally in writing, and that a record of such examinations should be kept by the secretaries of the boards.

Resolved, That, in the opinion of this Association, a diploma from a reputable dental college should be considered as the only evidence of qualification for those who seek in the future to enter the dental profession, and that we recommend to all State Boards to secure, at the earliest practicable moment, the amendment of existing laws so as to attain this end.

Resolved, That the appropriation, by any person, of any title or appellation to which he is not justly entitled and by which deception and fraud may be practiced, is, in the opinion of this Association, highly reprehensible, and should be prohibited by legal enactment.

Resolved, That this Association deems it undesirable that State Examining Boards should be composed of gentlemen serving as professors in dental colleges, and recommends to the appointing powers of all States that, so far as may be possible, the places of such professors, when their terms of office expire, be filled by those not holding such positions.

The Association adjourned to meet in Minneapolis on the first Tuesday in August, 1885.

GEO. H. CUSHING, *Secretary*.

PENNSYLVANIA STATE DENTAL SOCIETY.

The seventeenth annual meeting of the Pennsylvania State Dental Society will convene at Cresson Springs, Pa., Tuesday, July 28, 1885, at 10 A. M., and continue in session three days. Rates at the Mountain House have been reduced from \$4.00 to \$3.00 per day to delegates and their families, dating from Saturday, July 25, and continuing as long as desired. Orders for *special* excursion tickets will be issued over all lines of the Pennsylvania and Allegheny Valley Railroads. Usual excursion rates on other roads. Orders or general information can be obtained by addressing

W. H. FUNDENBERG, *Cor. Secretary*,
958 Pennsylvania Ave., Pittsburg, Pa.

SIXTH DISTRICT DENTAL SOCIETY.

The following officers were elected at the sixteenth annual meeting of the Sixth District Dental Society of the State of New York, May 5, 1885: President, C. E. Dunton, Cazenovia; Vice-President, S. W. Ademy, Union; Secretary, E. D. Downs, Owego; Treasurer, Frank B. Darby, Elmira; Censor, E. D. Downs, Owego; delegates to State Society, for four years, W. C. Stewart, Elmira, A. M. Holmes, Morrisville.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The second meeting of the National Association of Dental Faculties will be held in Chicago, commencing Friday, July 31, 1885.

C. N. PEIRCE, *President*.

AMERICAN DENTAL ASSOCIATION.

The next meeting will be held in Minneapolis, Minn., Tuesday, August 4th, 1885. For particulars, see article on page 93 of this journal.

MEETING OF STATE DENTAL SOCIETIES.

Missouri, second Tuesday in July, at Sweet Springs. D. J. McMillen, President; Geo. L. Shephard, St. Louis, Secretary.

New Jersey, Wednesday, July 20th, at Long Branch. J. W. Scarborough, President; C. A. Meeker, Newark, Secretary.

Virginia, Tuesday, August 19th, at Charlottesville. J. H. Moore, President; L. M. Cowarden, Richmond, Secretary.

Wisconsin, July 20th, at Milwaukee. B. G. Marklein, President; C. A. Southwell, Appleton, Secretary.

East Tennessee, first Tuesday of August, at Chattanooga. R. A. B. Noyers, President; S. N. Prothro, Secretary.

Northwestern, fourth Tuesday of July, at Fargo, Dakota. Lewis Ottofy, President; S. J. Hill, Fargo, Dakota, Secretary.

 DR. L. P. MEREDITH.

The following resolutions were adopted at the Fourteenth Annual Meeting of the Kansas State Dental Association, which convened at Topeka, May 5th, 1885:

Whereas, Since the last meeting of the Kansas State Dental Association the Allwise Author of our being has removed by death our highly esteemed friend and fellow-laborer, Dr. L. P. Meredith; therefore,

Resolved, That we desire to give expression to our sincere regret that one so valuable to the dental profession as an author, as a cultivated gentleman, and of high professional attainments should be lost to the cause of dental progress in the world.

Resolved, That we will profit by his counsels which were always so ably given.

Resolved, That a copy of these resolutions be spread upon a memorial page in the Association records, a copy furnished to the family of the deceased, and to the Dental Journals.

Resolved, That we extend to his sorrowing family our sincere sympathy in their deep affliction.

J. D. PATTERSON, }
 R. I. PEARSON, } *Committee.*
 A. H. THOMPSON, }

C. B. REED, *Secretary*.

MORTALITY OF INFANTS.

In an article on the above subject, Dr. J. H. Hanaford, (*St. Louis Medical Journal*,) writes the following regarding food given to infants. There is a possibility that the defective teeth seen in children is due to the improper starchy diet here mentioned.

“Many of our infants are sacrificed by improper feeding; the errors relating to times, to kinds of food given and to quantity. Most are fed too often, the ignorant mother supposing that the proper way of keeping the “wind out of the stomach” is by keeping that organ so gorged with food that no external “wind” can enter it, while the only “wind” to be feared is generated in the stomach, in consequence of excessive feeding. While some infants are fed but three times a days (the calf but twice,) I claim that, as soon as possible, or within a few days from birth, the three-hour system should be adopted—in ordinary cases—and strenuously followed, the time between meals to be gradually increased with advance of age. No meals in the night, at least, after from four to six months. *Never* but one.

“Again, many babes are brought to the table, eating about the same food taken by the family, which is as sensible as to provide them with the same clothing which is worn by adults. It is known by some, and should be by all medical advisers, and mothers, that the infant saliva, before the appearance of several teeth, is not provided with the necessary diastase for the digestion of starchy substances, without which starch cannot be properly digested and assimilated.

“And yet, babies are fed on pastry, rice, fine flour bread, arrowroot, corn starch, and the like, literally so starved as not to grow and be vigorous, like the babe properly cared for by an intelligent mother. Some, at the suggestion of an ignorant medical attendant, are fed on a large quantity of water, combined with a little cream, a “vile compound” containing but little to nourish the babe, much less than *skimmed milk*. In this connection, it is proper to say that every true mother wishes to nurse her own child, this act constituting a very strong bond of sympathy and affection, besides being natural, and therefore healthful to the child.”

DR. LAURENCE TURNBULL, of Philadelphia, the acknowledged authority on anæsthetics, has received a cordial invitation from Prof. Frazer, of Edinburgh,—chairman on Therapeutics and Materia Medica,—to meet with the British Medical Association, at Cardiff, Wales, to take part in a discussion on Anæsthetics. This is quite flattering to Dr. Turnbull, and an acknowledgment of his investigations regarding anæsthetics and anæsthesia.

CUTTING A SILVER DOLLAR OUT OF A DOG'S STOMACH.—A valuable young water spaniel belonging to a gentleman of Buffalo, has recovered from a successful operation performed by a medical student named Charles Auel. About three weeks previous to the operation the dog accompanied a child to the grocery, and as the animal had been taught to carry parcels in his mouth, was given a silver dollar to carry on this occasion, and on the way he began to bark and the piece of money flew down his throat, it was supposed, for it was missed and could not be found. In a few days the dog became sick and could not retain food in his stomach, and the owner thought of killing him, but Mr. Auel thought he could save him, as it was a pity to kill so fine an animal without an effort. The student described the operation as follows:

I gave him chloroform, and it took a great deal for some reason, but once under its influence I made a two-inch incision into the stomach and there found the silver piece very much tarnished. I then carefully sewed up the hole in the stomach with threads of catgut and the hide with silk, and for ten days fed the dog by injection, the stomach being too weak to retain food. On the second day he vomited blood; I gave him ergot and it cured him. When he experienced pain I gave him hypodermic injections of morphine, and to-day he is well and can eat and digest his food with the healthiest dog on the street. I told some of my friends at the college when I was about to perform the operation and they only laughed at me, but as I had seen a somewhat similar operation on a man in a German medical college, I thought I would try it on the dog. He was so intelligent when I operated on him, that he would lick my hand and appeared to know I was trying to help him.

DR. FRANK B. DARBY, of Elmira, N. Y., has recently introduced a "Capsicum plaster" to take the place of the "Capsicum bag" so successfully used during the past year. Dr. Darby's improvement consists in placing the same ingredients as contained in the bag on a soft, flexible rubber-coated felt, of suitable size, forming a "plaster" which readily adapts itself and will stick to the gums and remain in position.

Their use is indicated in all cases of pericemental inflammation, and pulp irritation, such as pain or tenderness about the roots of dead teeth, soreness caused by prolonged gold operations, wedging, or other causes. In fact, any tenderness or inflammation about the roots of teeth, is claimed to be relieved by the prompt application of this plaster.

Very favorable reports have been received from those who have tried both "bag" and "plaster," and in all instances the plaster has been given the preference.

IT HAS been the fate of THE DENTAL ADVERTISER to be twice burned out—at least the material part of it, comprising all the electrotype plates and many wood-cuts that happened to be in the printing offices at the time of the fires.

The first fire (*Commercial Advertiser* Building), occurred December 21, 1882, at which time the edition for January, 1883, being nearly ready for delivery, was entirely consumed. This necessitated a change, and the January number was printed at the office of the *Morning Express*, as have been all subsequent issues till April 16, 1885, when the second fire occurred. Fortunately the April number was saved from the bindery, and delivered to subscribers by the middle of the month. Our electrotype plates, however, were destroyed.

A singular concurrence regarding both fires, is that they took place about six o'clock in the evening, and that the writer happened to be in both buildings at the time of the respective fires. However, the story is better told by a clipping from the *Commercial Advertiser* of this city:

“Dr. Theodore G. Lewis, the well-known dentist and editor of THE DENTAL ADVERTISER, had a narrow escape in the burning building, and it is a noteworthy coincidence that he was one of the last to leave the *Commercial* building, when it was destroyed by fire in December, 1882. The Doctor thinks he has had his share of fire experiences in printing offices. Last evening he was in the job office of the *Express* on business, and was conversing with the foreman, when there was a sudden rush, and a cry of fire. The Doctor started down the stairway on the Exchange street side, but was driven back by the flames and smoke. He then recollected that a stairway leading to the roof was close at hand, and instead of going down he went up, reaching the roof in perfect safety, and remaining there for about three-quarters of an hour. Had he become confused, or been unfamiliar with the surroundings, he would doubtless have lost his life.”

This number of our journal is printed from new type and electrotype plates. Its neat appearance is not due entirely to that fact, but in a great measure to the taste, skill and excellent judgment of those in the employment of the *Commercial Advertiser* printing house.

M. WEILL has, it is said, succeeded in coating instantaneously all the ordinary metals and their alloys with a thin film of brass, which can be varied in color. He uses only a single battery cell, and obtains at will solid deposits of various hues and brilliancy. The tints are stated to be due to the formation of copper oxides, the composition of which has not yet been determined.

MISCELLANEOUS NOTES.

The persistent student never becomes a quack. No dentist who has subscribed for from two to four good dental journals and carefully read them can be a quack.—*Prof. Taft.*

If you want to be miserable, think about yourself, about what you want, what you like, what respect people ought to pay to you, and what people think of you.—*Charles Kingsley.*

It is not our business to answer questions (unless before a court) as to the operations of another operator. Our business is to say what needs to be done, and to do it. The public have no right to ask our opinion of operations they may have had performed, and we certainly have no business to answer such inquiries.—*Cushing.*

A patient came to a surgical clinic at the Rush Medical College to obtain Dr. Gunn's opinion of an operation which had been performed by another surgeon—simply to get his opinion about what had been done. Dr. Gunn put him out of the room at once, stating that it was not his place to criticise other surgeons. A lesson for dentists.—*Brophy.*

In a recent novel, a young lady falls down a precipice and is supposed to be dead; but her companion (a young gentleman) announces her to still live, having felt pulsation in her femoral artery. A candidate for medical honors also declares in her examination paper, that "Bleeding from the nose is neither venus nor artillery—it is caterpillary."

The Disinfection of Rooms.—At the requisition of the Prefect of Police, M. M. Dujardin, Beaumetz, Pasteur and Roux performed experiments with the view of ascertaining what would be the best gas for disinfecting rooms in which patients suffering from contagious affections had sojourned. These gentlemen have come to the conclusion that sulphurous acid gas would be the most efficacious for such purposes; but instead of simply burning sulphur, as is done in the barracks and military hospitals, they recommend the burning of bisulphide of carbon as being the least expensive and the least injurious to the furniture or articles of metal in the rooms. This recommendation is not new, but it is satisfactory to have it stamped with the authority of the distinguished Frenchmen.

BOOK NOTICES.

ART AND DECORATION. An illustrated monthly devoted to interior and exterior ornament; 9 East 17th Street, New York.

The first number of the most beautiful art magazine ever published in this country, and containing contributions from the leading prominent American artists has been received. There are about fifty illustrations, twenty of them being full pages. The printing is a novelty in magazine work, the impressions being in black and chocolate ink.

No magazine ever started with such a magnificent list of prominent contributors.

The frontispiece is a beautiful figure by F. S. Church, followed by Wall Decorations by Mazzanovitch, Mantels by Pierce, Tiles and Panels by Volkmar, Lambrequins by Halm, Jewelry by Bouché, and a great variety of other useful designs, including eight full page illustrations of the application of the palm to decoration, compiled by that eminent authority, Raguenet. Price 25 cents a number. Publication office, 9 East 17th Street, New York.

BOOKS RECEIVED.

FOURTEENTH ANNUAL REPORT OF THE MANAGERS OF THE BUFFALO STATE ASYLUM FOR THE INSANE, for the year 1884.

THE BOOK-WORM. Containing entertaining selections from popular authors. New York; John B. Alden, 393 Pearl Street.

THE LIBRARY MAGAZINE. Monthly. New York; John B. Alden, 393 Pearl Street. Price, \$1.50 a year.

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DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

- 315,241—April 7, 1885.—VULCANIZER.—Frank H. Chidester, Massillon, Ohio.
 315,319—April 7, 1885.—DENTAL PLATE.—James K. Morris, Des Moines, Iowa.
 315,575—April 14, 1885.—DENTAL FILE HOLDER OR CARRIER.—Herbert E. Wales, Haverhill, Mass.
 315,656—April 14, 1885.—ARTIFICIAL DENTURE.—Philip A. Palmer, Chicago, Ills.
 315,706—April 14, 1885.—FORCEPS FOR APPLYING RUBBER-DAM CLAMPS.—F. A. Brewer, San Francisco, Cal., and W. Storer How, Philadelphia, Pa.
 315,725—April 14, 1885.—PORTABLE LABORATORY FOR DENTISTS AND JEWELERS.—N. W. Caughy, Baltimore, Md.
 315,750—April 14, 1885.—DENTIFRICE.—Joseph E. Edmunson, Athens, Ohio.
 316,100—April 21, 1885.—DENTIST'S CHAIR.—Otis C. White, Hopkinton, Mass.
 316,459—April 28, 1885.—ADJUSTABLE BRACKET.—Woodbury S. How, Cincinnati, Ohio.
 316,548—April 28, 1885.—ADJUSTABLE BRACKET.—Woodbury S. How, Cincinnati, Ohio.
 316,636—April 28, 1885.—INHALER OR RESPIRATOR.—John A. Miles, Charleston, S. C.
 317,259—May 5, 1885.—ARTIFICIAL TOOTH.—Marion W. Williams, Hopkinsville, Ky.
 317,669—May 12, 1885.—DENTAL PLATE.—Aaron H. Parker, Boston, Mass.
 318,173—May 19, 1885.—DENTAL INSTRUMENT.—Robert B. Donaldson, Washington, D. C.
 318,177—May 19, 1885.—DENTAL ENGINE HOLDER.—Charles H. Gilbert, Andover, Mass.
 318,579—May 26, 1885.—ARTIFICIAL DENTURE.—Lucius T. Sheffield, New York, N. Y.
 318,580—May 26, 1885.—ARTIFICIAL DENTURE.—Lucius T. Sheffield, New York, N. Y.
 318,581—May 26, 1885.—SUPPORT FOR ARTIFICIAL DENTURES.—Washington W. Sheffield, New York, N. Y.
 319,110—June 2, 1885.—ANGLE ATTACHMENT FOR DENTAL ENGINES.—Chauncey D. Miller, Poughkeepsie, N. Y.
 319,236—June 2, 1885.—TOOTH CROWN.—Charles P. Grout, New York, N. Y.
 319,237—June 2, 1885.—DENTAL TOOL FOR PREPARING ROOTS FOR CROWNS.—Charles P. Grout, New York, N. Y.
 319,238—June 2, 1885.—METHOD OF APPLYING METALLIC TOOTH-CROWNS.—Charles P. Grout, New York, N. Y.

- 319,338—June 2, 1885.—DENTAL BREATH GUARD.—Charles C. Southwell, Milwaukee, Wis.
319,583—June 9, 1885.—ANGLE ATTACHMENT FOR DENTAL ENGINES.—William A. Johnston, Clifton, and Arthur W. Browne, Westfield, N. Y.
319,584—June 9, 1885.—DENTAL PLIERS FOR ADJUSTING TOOLS IN HAND PIECES.—William A. Johnston, Clifton, and Arthur W. Browne, Westfield, N. Y.
319,746—June 9, 1885.—ARTIFICIAL TOOTH.—Henry C. Register, Philadelphia, Pa.
319,829—June 9, 1885.—ARTIFICIAL DENTURE.—James E. Low, Chicago, Ills.
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
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THIS COMPOUND NOW STANDS WITHOUT A RIVAL. From Five to Seven Years.
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PRICE—(Two Colors,) Gray and Yellow, Per Package, \$2.00
(One Color,) Gray, Yellow, Medium, Light, " " 1.00

The Universal Verdict is that Caulk's Diamond Cement is the best.
A Fair Trial will convince you.

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THIS GOLD AND PLATINA ALLOY IS MANUFACTURED on a NEW PRINCIPLE.

NONE BETTER MADE. SAVES TEETH WHERE OTHERS FAIL. With one exception, we were the first to manufacture an Amalgam containing Gold and Platina, although we did not call it such, simply our trade name **Par-Excellence Alloy**, which fully expresses the superiority of this combination of metals over others.

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HAS BEEN GREATLY IMPROVED, COSTING MORE TO PRODUCE IT. THERE IS NOTHING EQUAL OR SUPERIOR TO IT.

Is of a peculiar grayish-white color. When amalgamated in the hand works with a soft and velvety feeling. Is very **DENSE**, and so malleable that it can be malleted with the greatest ease.

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FOR DENTAL VULCANIZERS.



PATENTED
October 31, 1871.

This device was invented by Dr. J. B. Coolidge, of Boston, about the year 1871. A number of them were made and sold at that time, and are to-day in good condition. It is operated by the pressure of steam upon a thin metal disc, which, yielding to the pressure, closes a valve which controls the flow of gas to the burner under the vulcanizer. Extensive experiments have been made to procure a metal for the disc which would not lose its elasticity by use, nor give way from the effects of corrosion, and it is offered to the dental profession with the assurance that it will be found to be accurate, serviceable and durable.

The time regulator is of new design. In this, as in the gas regulator, the use of rubber in any form, excepting as connecting tubing, has been entirely discarded, as experience has proved that substance to be very prone to deterioration from a variety of causes. It has a metallic valve, which is gas-tight, whether it be open or closed, and the operating screw being protected from the action of the gas, the valve will be found to operate with ease and certainty. The timing device is believed to be new, and as it is operated by the minute arbor of the clock, instead of the hour

arbor, as is usually the case, it is capable of very delicate adjustment as to time, its variation being limited by seconds instead of minutes.

The gas regulator is a better means of maintaining a regular heat than a thermometer, for the reason that as it acts by the steam pressure its movement is positive, and it can be depended upon to act at the desired point after it is once properly set. A certain steam pressure is the result of the application of a certain amount of heat, and it is immediately indicated by the diaphragm of the regulator. Before the thermometer can act, it has to receive a certain amount of heat, and the rapidity with which this will be received depends upon the conductivity of the parts between the flame and the thermometer. The amount of air above the water in the vulcanizer, the variation of thickness of metal at the bottom of the mercury cup, and the presence or absence of mercury in the mercury bath, are all conditions which vary and retard the action of the thermometer.

The following experiment will illustrate the comparative operation of the two devices: Let the vulcanizer be closed with, say, two inches of water in it, and heat applied. The regulator will turn down the gas, when the thermometer registers somewhere in the neighborhood of 300°. If the screw cap of the safety disc is now loosened, and steam allowed to escape for one minute, and the screw cap then tightened, the thermometer will in a few moments be found to register 320°.

The reason of this is that as air conducts heat very imperfectly, its mixture with the steam interferes with its conductivity and with the indication of the temperature by the thermometer; but after the air has been allowed to escape, there is an atmosphere of steam above the water in the vulcanizer, which must be of the temperature due to its pressure, throughout its whole extent.

PRICE.

Gas and Time Regulator, complete, \$10.00

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It is the TOUGHEST and Most Durable Rubber Made. Vulcanizes same as Ordinary Rubber.

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Black Rubber, per lb., 2.25	Rubber, per lb., 4.00
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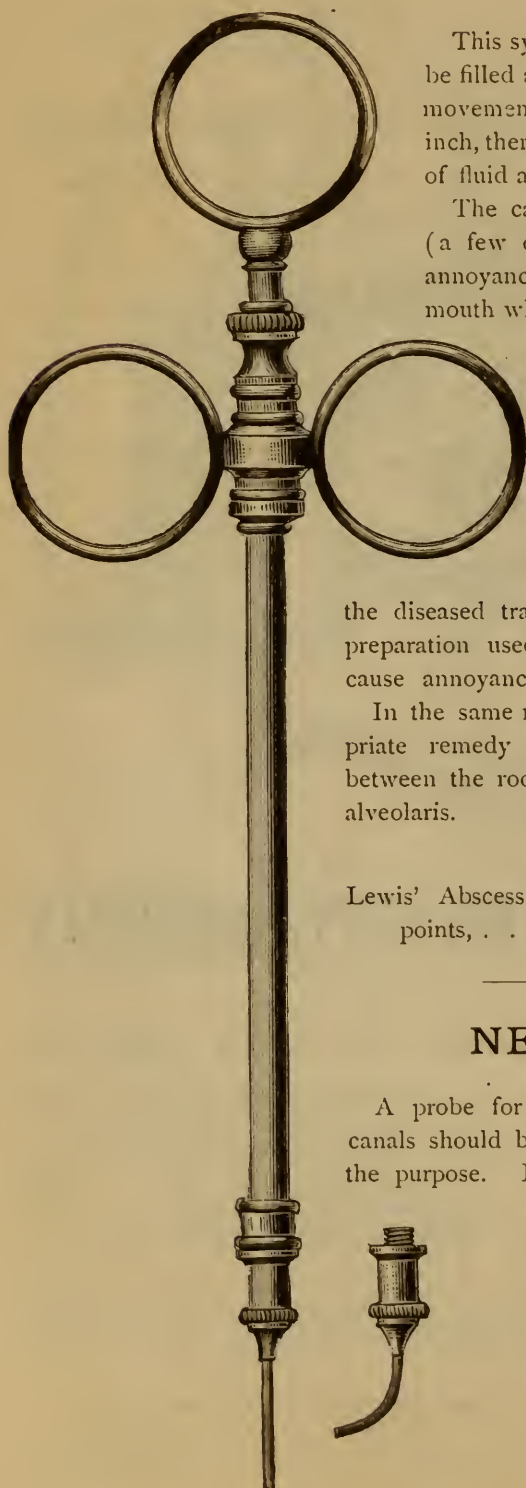
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FOR TREATMENT OF

Alveolar Abscess, Pyorrhœa Alveolaris, etc.



This syringe is so constructed that it can be filled and operated with one hand. The movement of the piston is but $\frac{1}{4}$ of an inch, thereby taking up the desired quantity of fluid and no more.

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In the same manner a few drops of the appropriate remedy may be placed in the pocket between the root and gum in a case of pyorrhœa alveolaris.

PRICE.

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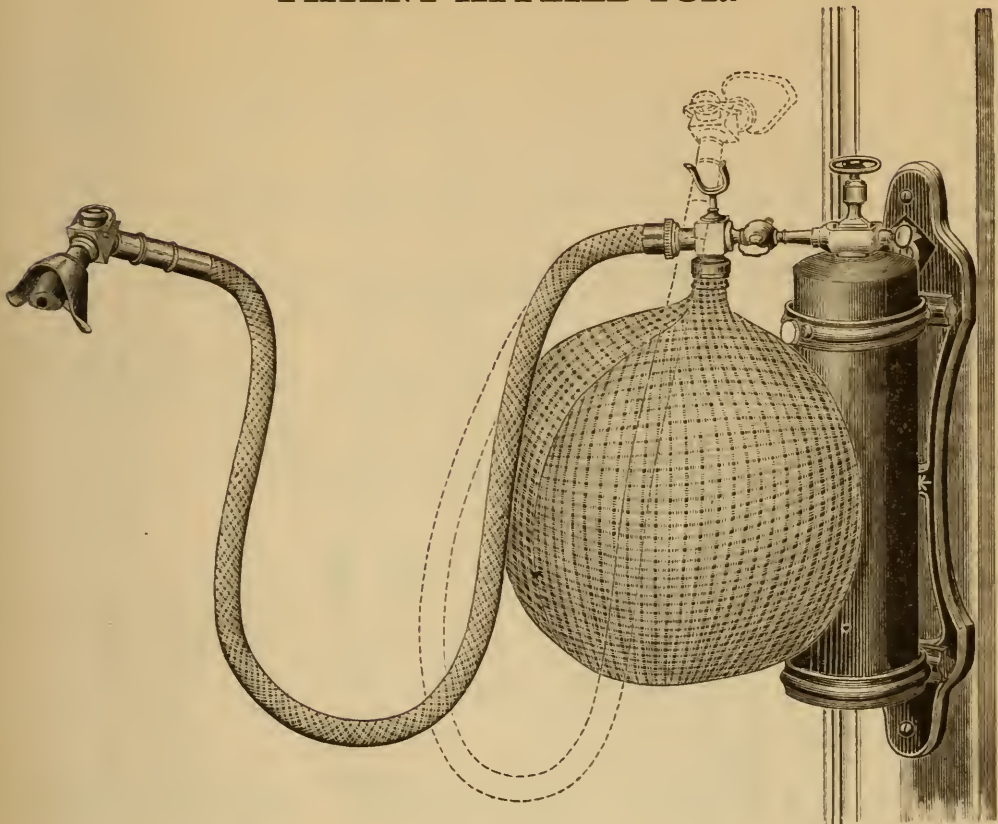
A probe for introducing dressings into root canals should be of the right size and temper for the purpose. It should be elastic, yet not so hard as to break, and fine enough to carry cotton to the end of the canal. The one illustrated is made of piano wire, which combines elasticity and toughness in a surprising degree.

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PATENT APPLIED FOR.



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Complete, as shown, with 4½-gallon Bag and Filled Cylinder,	\$35.50
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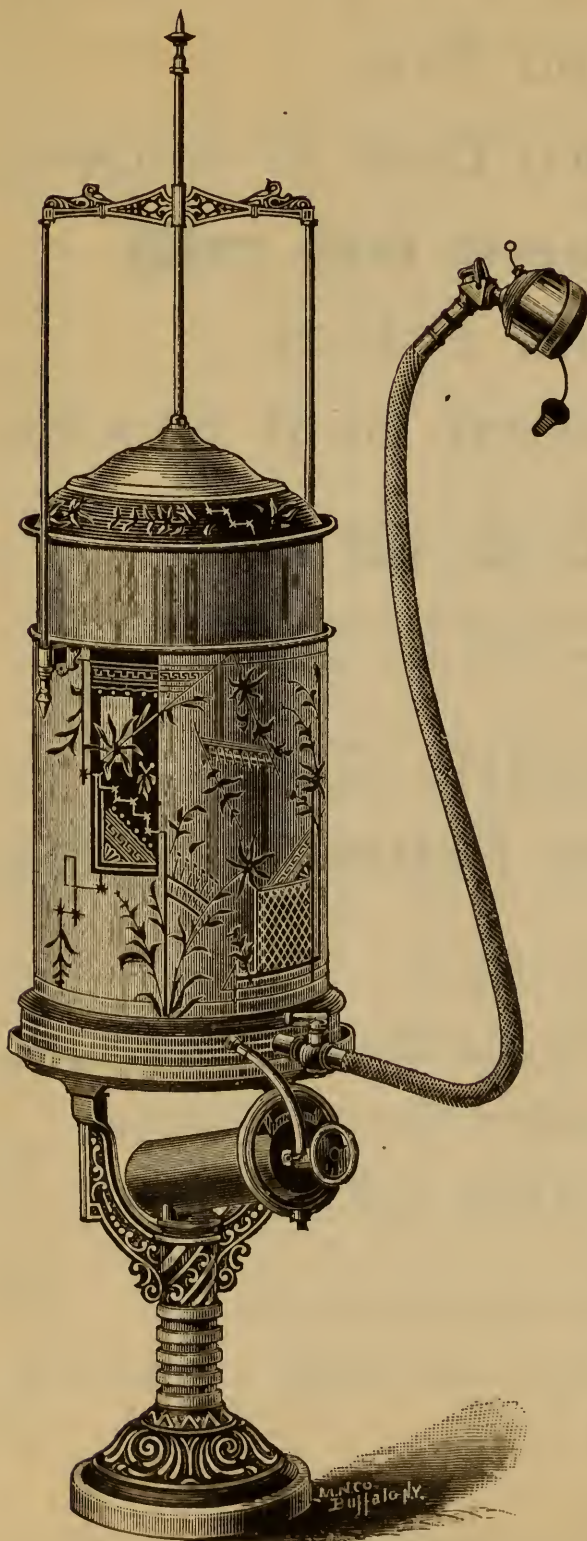
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Made of best Galvanized Iron, highly and artistically ornamented. All bright parts nickel-plated.

IT IS FITTED FOR EITHER A 100
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Contains an effective Water Seal

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Boxing included.

The No. 1 and No. 2 are identical in construction, the difference being in ornamentation.

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PRICE REDUCED TO \$3.00 PER OZ.

This Amalgam has been before the profession in Ohio and Western Pennsylvania for some years, and all who have used or tested it agree that it has merits over any other Amalgam in the market.

The process of manufacture differs from that of other Amalgams, and

BY A NEW INVENTION

Dr. King is enabled to obtain better results, both in regard to COLOR, SHRINKAGE, and EXPANSION, than is obtained in any other alloy in the market.

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TESTIMONIALS.

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GALE FRENCH, D. D. S.

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J. G. TEMPLETON, D. D. S.

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"CONTOUR" AMALGAM ALLOY,	"	3.50
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"SUB-MARINE" " " " " " 2.50

"PLASTIC ENAMEL" (Nitro-phosphate of Zinc) . $\frac{1}{5}$ oz. 2.00

OXY-PHOSPHATE OF ZINC, ("Non-deteriorating") " 1 00

OXY-CHLORIDE OF ZINC, per package, 1.00

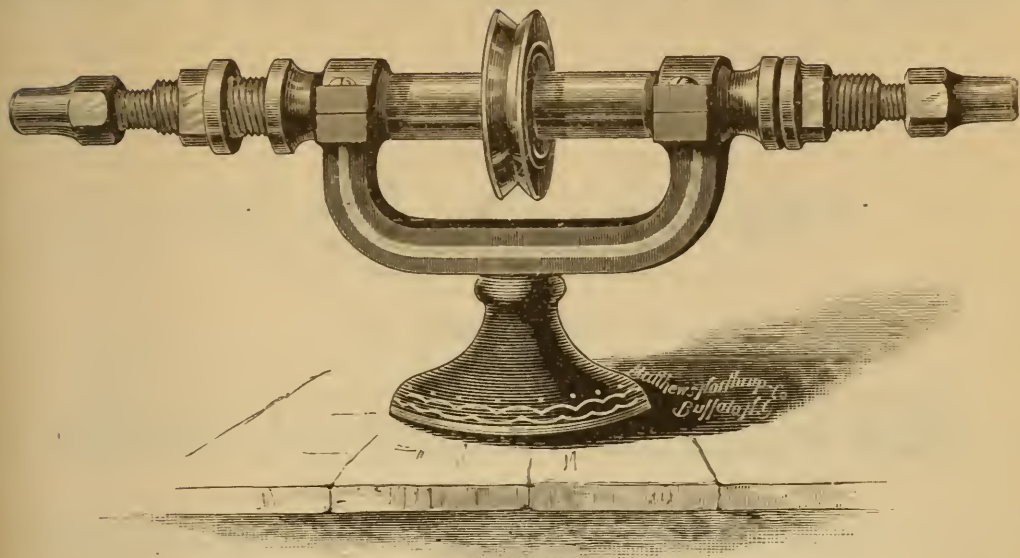
PEPPER BAGS, (package of 20,) \$1.00. GLASS MORTARS, (properly ground,) 75c.

GUTTA PERCHA AND INSTRUMENT WARMERS, (Dry-Heat,) \$4.00.

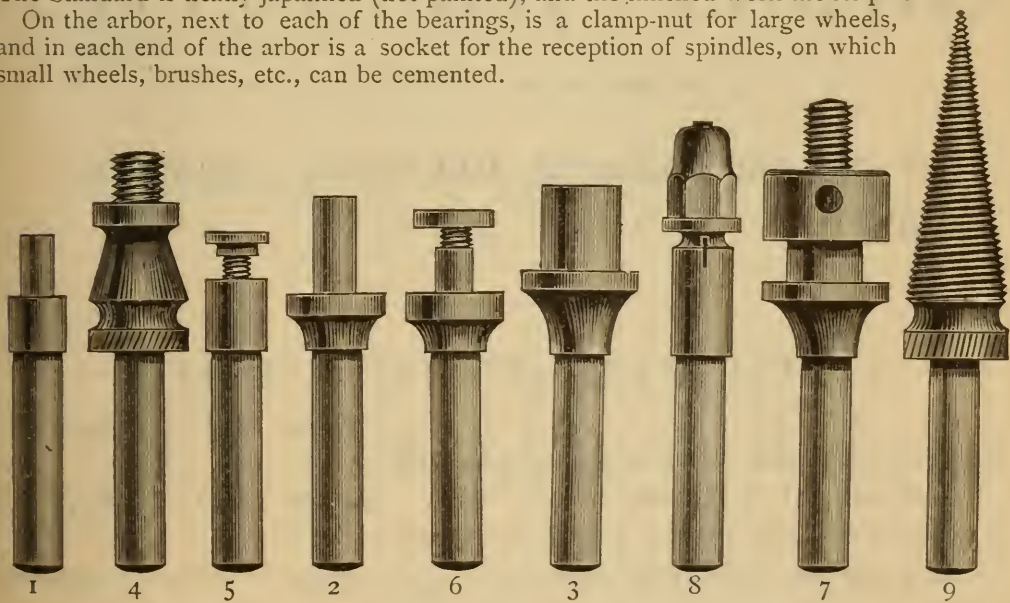
FOR SALE AT DENTAL DEPOTS.

DR. FLAGG, 106 NORTH ELEVENTH STREET, PHILADELPHIA, PA.

B. D. M. CO.'S LATHE HEAD.



This head consists of a cast-iron Standard and a cast-steel arbor, highly finished, forming one of the best combinations of wearing surfaces for light work that is known. The Standard is neatly japanned (not painted), and the finished work nickel-plated. On the arbor, next to each of the bearings, is a clamp-nut for large wheels, and in each end of the arbor is a socket for the reception of spindles, on which small wheels, brushes, etc., can be cemented.



The chucks are designed to meet all requirements of the office and laboratory. Nos. 1, 2, 3 are for shellacing corundum wheels on. No. 4 will take the nut corundum wheel. Nos. 5, 6, 7 are screw-chucks for corundum wheels, etc., and No. 8 will carry all the engine tools. No. 9 is a screw-cone for carrying brush wheels on.

PRICES.

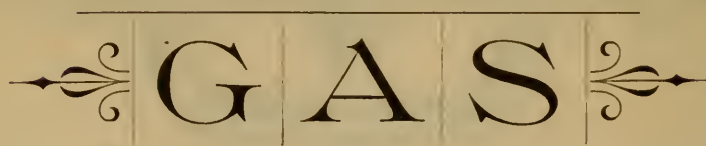
Head complete, with nine Chucks, \$11.00

PARTS SEPARATELY.

Head without Chucks,	\$8.00	Chucks No. 6, each,	\$0.45
Chucks No. 1, each,	.15	“ “ 7, “	.60
“ “ 2, 4 and 9, “	.25	“ “ 8, “	1.00
“ “ 3 and 5, “	.30		

Owing to the Constantly Increasing Demand

FOR



AND WITH

NEW FACILITIES FOR MANUFACTURING

I am enabled to announce the following

GREAT · REDUCTION

In Prices, which hereafter will be

4 cts. per Gallon in 100 Gallon Cylinders.

3½ “ “ 500 “ “

COMPLETE GAS APPARATUS OUTFITS.

	<i>Former Prices.</i>		<i>Reduced to</i>
Surgeon's Case, with 4½ gal. gas bag and 100 gal. Cylinder filled, . . .	\$42.00	\$40.00	\$37.75
Surgeon's Case, with 7 gal. gas bag and 100 gal. Cylinder filled, . . .	44.00	42.00	39.00
Univers. Tripod, with 4½ gal. gas bag and 100 gal. Cylinder filled, . . .	36.00	34.00	32.75
Univers. Tripod, with 7 gal. gas bag and 100 gal. Cylinder filled, . . .	38.00	36.00	34.50

SEPARATE PARTS.

Cylinder containing 100 gal. gas, . . .	\$16.00	\$15.00	\$14.00
“ “ 500 “ . . .	44.00	42.00	39.50
Re-filling 100 gal. Cylinder, . . .	6.00	5.00	4.00
“ 500 “ per gal. 3½c. . .	22.50	20.00	17.50

I continue to REFILL Cylinders of ALL
MAKES, as well as to GUARANTEE the KEY-
STONE VALVE, and the WEIGHTS of the
Cylinders as marked ON THE LABELS.

Dentists having EXPERIENCED TROUBLE
and LOSS OF GAS through FAULTY valves,
will find it to their ADVANTAGE to have them
REPLACED by the KEYSTONE valve at a
nominal cost.

PHILADELPHIA, PA., April 1, 1885.

H. D. JUSTI,

— DENTAL DEPOT, —

No. 516 Arch St., - Philadelphia, Pa.

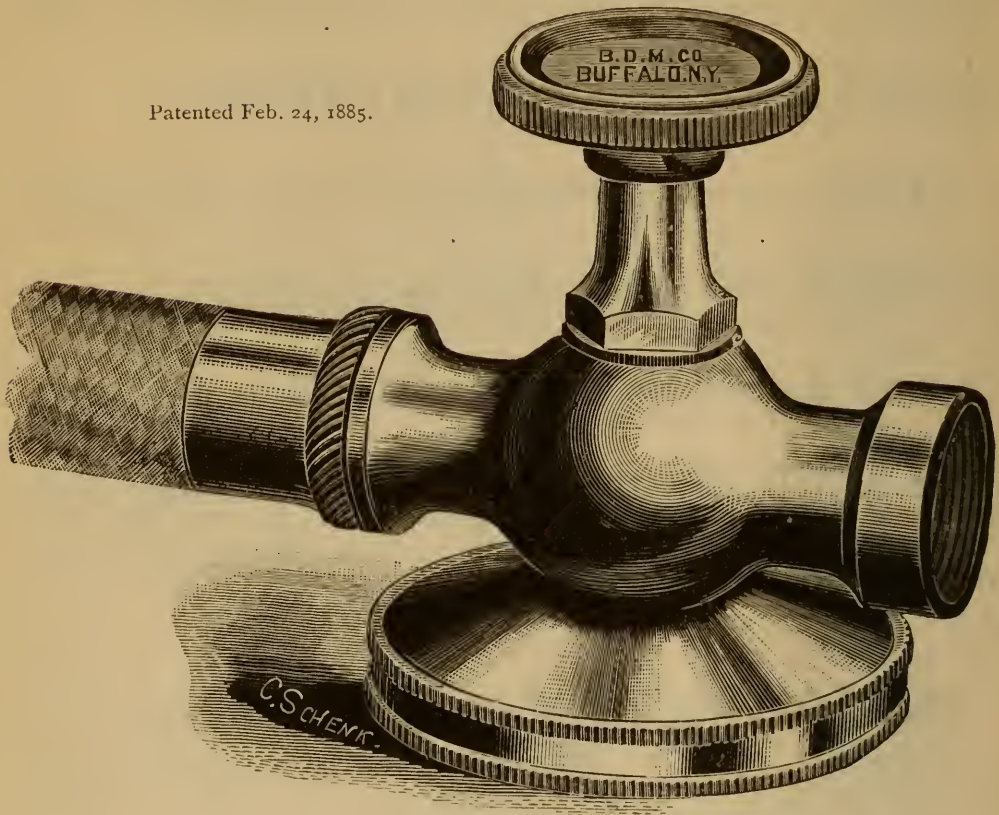
BRANCH: 66 E. MADISON ST., CHICAGO, ILL.

Sole Agent for the Keystone Gas Regenerating Co.

CHLOROFORM MIXER

For Attachment to Nitrous Oxide Apparatus.

Patented Feb. 24, 1885.



A New Appliance for Administering Mixed Anæsthetics.

Nitrous oxide gas, as an anæsthetic, is often objectionable from the quickness with which its effects pass off. Full anæsthesia is easily produced, but the patient regains consciousness before the operation is completed. So, if a number of teeth are to be extracted, the gas is of necessity administered more than once, and often several times.

It has been discovered, however, that a mixture with the gas, of the vapor of a few drops of chloroform—so little, in fact, as to be incapable of itself of producing any marked effect upon the system—will so intensify and prolong the anæsthetic effect of the gas, that, in most cases, one administration will serve for the extraction of several teeth; at least two or three times as many as it would be possible to extract if the gas were given pure.

The Buffalo Dental Manufacturing Co. offer to the Dental Profession, as an adjunct to the Lewis Gasometer, an apparatus for the purpose alluded to above, which is believed to present some new and valuable features as compared to those heretofore used. The chloroform is confined in a receptacle below the gas passage, which is closed by a screw valve. A stem, covered by a fibrous sheath, extends downward from the valve into the chloroform. When the mixture is to be made, the valve is loosened by the wheel-handle,

and drawn upwards, raising with it the covered stem, which brings with it a certain amount of chloroform into the gas passage; where it is exposed to the current of gas as it passes to the inhaler. A small piston closes the passage to the chloroform reservoir as the handle is raised, cutting off the escape of vapor. With this apparatus the mixture may be made or withheld, and more or less chloroform given, as the judgment of the operator may dictate. The chloroform vapor does not pass into the gasometer, but directly to the patient, and by giving it when the patient is already partially under the influence of the gas, the effect of both is intensified, anæsthesia is prolonged, and a notable saving is made in the quantity of gas administered.

In making the mixture for this purpose, by means of the so-called "Vitalized Air" apparatus, the usual practice has been to place the desired quantity of chloroform for the mixture in the passage from the *gas-cylinder to the gasometer or gas-bag*, the mixture being made as the gas is drawn *from* the cylinder. It will be seen at once that the chloroform vapor will constitute but a very small percentage of the mixture, and that the effect of that first given will pass off, at least partially, before anæsthesia is fully produced. It is also evident that the question whether the pure gas or the mixture is to be used must be settled at the time the gas is drawn from the cylinder: and when the mixture is made, its presence in the gas-holder precludes the use of pure gas if circumstances should favor it. While on the other hand, the quantity of chloroform in the mixture cannot well be increased, even if it should be desirable to increase it.

This apparatus can be applied to any style of gasometer or bag.

DIRECTIONS.

Screw the outlet cock on to the gasometer, then screw the mixer on to the cock. If it is necessary, shave down the leather washers so that the mixer will stand upright, with the hand-wheel on top. Unscrew the reservoir and place in it enough chloroform to nearly, but not quite, fill it; then replace it, slacking off and raising the milled screw-head handle on top of the mixer. After the reservoir is in place, screw the handle down again. The chloroform is now securely retained in the reservoir. When the mixture is wanted (which is after the patient has taken enough gas to be partially under its influence), unscrew and raise the milled handle. This will place a few drops of chloroform in the gas passage, where it will evaporate and mix with the gas as it passes to the patient. If more chloroform is wanted, press down the finger piece which surmounts the milled handle, and again raise the handle.

When the apparatus is not in use, the milled handle should always be screwed down to prevent the evaporation of the chloroform. The reservoir will contain about one ounce of chloroform.

PRICE.

B. D. M. Co.'s Chloroform Mixer, for the Lewis Gasometer, \$6.00
Expense of adaptation to other styles of gas apparatus, Extra.

MANUFACTURED ONLY BY

THE BUFFALO DENTAL MANUFACTURING CO.

GIDEON SIBLEY,
 MANUFACTURER OF
 ARTIFICIAL TEETH
 AND DEALER IN
 DENTAL SUPPLIES,
 THIRTEENTH AND FILBERT STS., - - PHILADELPHIA, PA.



It is gratifying to find, that after years of assiduous labor to produce the best Tooth made, their superiority is so universally acknowledged, and the rapid demand for them has necessitated large additions to our factory and salesroom.

POINTS ON WHICH WE SEEK COMPARISON:

STRENGTH, NATURAL SHAPES, TEXTURE, COLORS, LARGE DOUBLE-HEADED
 PINS, &c., COMBINED WITH OUR VERY LARGE ASSORTMENT
 OF MOULDS AND VARIETY OF SHADES.

ASK YOUR DEALER FOR THEM, OR SEND ONE DOLLAR FOR A SAMPLE SET.

[ja85-1y] FOR SALE BY BUFFALO DENTAL MFG. CO.



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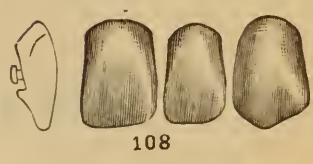
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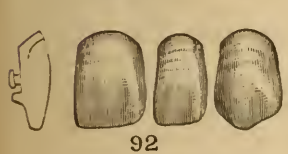
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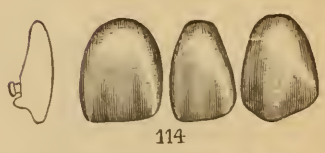
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GIDEON SIBLEY,
 MANUFACTURER,
 13th and Filbert Streets,
 PHILADELPHIA, PA.

PLASTIC FILLINGS

PREPARED AND TESTED BY

THOS. FLETCHER, F. C. S.

WARRINGTON, England.

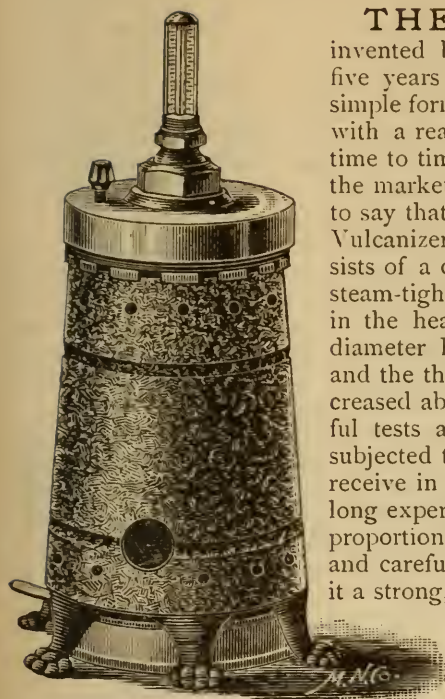
	Per oz.
PLATINUM AND GOLD ALLOY,	\$4.80
EXTRA PLASTIC AMALGAM,	5.00
	Per pkt.
WHITE ENAMEL, Oxychloride of Zinc,	\$1.50
ARTIFICIAL DENTINE, Oxysulphate of Zinc,	1.00
PATENT PORCELAIN, Double Phosphate of Alumina and Zinc,	1.50
HYDRAULIC GUTTA PERCHA,	1.00
	Per bottle.
Color for White Fillings—Pink, Brown or Blue,	\$0.12
COPAL ETHER VARNISH, . . . . .	.25
CARBOLISED RESIN FOR TREATMENT, . . . . .	.25
	Each.
Glass Pestles and Mortars, ground inside, with long Pestles for firm holding,	\$0.50
Mixing Tube for Amalgam, . . . . .	.15
Cylinder Mould for Amalgam, . . . . .	.30
Differential Balance for Amalgams, . . . . .	.75

BUFFALO DENTAL MANUFACTURING CO.

Dental Vulcanizers.

THE WHITNEY VULCANIZER,

invented by the late Dr. B. T. Whitney more than twenty-five years ago, has always had the name of being the most simple form of vulcanizer in existence, and it has always met with a ready sale. Attempts which have been made from time to time by different parties to place imitations of it upon the market, have met with very limited success, and it is safe to say that there are to-day more of the genuine Whitney Vulcanizers in use than of all other kinds together. It consists of a copper pot on to which a brass head is screwed, a steam-tight joint being made by means of a rubber packing in the head, which bears upon the edge of the pot. Its diameter has recently been enlarged from $3\frac{3}{4}$ to 4 inches, and the thickness of copper used in making it has been increased about one-third, thus insuring ample strength. Careful tests are given to each one as it is made, and each is subjected to a pressure of steam far above that which it would receive in use, and is afterwards thoroughly inspected. Our long experience in the manufacture of vulcanizers, the proper proportion of material in its different parts, and the accurate and careful workmanship bestowed upon it, combine to make it a strong, safe, durable and easily-managed machine.



HAYES' PATENT MERCURY BATH is applied to this vulcanizer, by which the bulb of the thermometer is protected from the destructive action of the steam upon it, and one of the most frequent causes of failure of the thermometer entirely obviated. It is also fitted with the B. D. M. Co.'s safety apparatus and safety disc, which will give way and allow the escape of the steam, if the temperature of the vulcanizer should be allowed, by forgetfulness or oversight, to rise to a dangerous extent. The pressure being thus relieved, a disastrous explosion becomes impossible.

The Whitney Vulcanizer is closed by means of two wrenches, the "round" and "straight" wrenches, (Nos. 3 and 8). These form the most convenient means for the purpose, for the traveling dentist. For those having a regularly appointed laboratory, the bed-plate and wrench, (Figs. 9 and 10) are recommended. The bed-plate is fixed to the bench, in which a hole is cut for the reception of the vulcanizer pot. These are furnished with the vulcanizer instead of the round and straight wrench, Nos. 3 and 8, without any advance in price. If a hole in the bench is not practicable, the Raised Bed-Plate (No. 16) will be furnished at an advance in price of 75 cents.

The heat is supplied by either gas, alcohol or kerosene. Apparatus for burning either is furnished as required.

We have succeeded in effecting arrangements with the manufacturers by which we are enabled to furnish a SPECIAL PATTERN OF KEROSENE STOVE with our vulcanizers, without the advance in price heretofore made in furnishing the Union Stove. This stove has a four-inch wick and will be found an efficient heater, much preferable to those heretofore used. This stove will always be furnished with this vulcanizer, unless other heating apparatus is specified. The Union Stove, if ordered, will be \$1.25 extra, as before.

PRICES.

No. 1, Vulcanizer, for one flask, Gas, Alcohol or Kerosene,	\$12.00
No. 2, Vulcanizer, for two flasks, Gas, Alcohol or Kerosene,	14.00
No. 3, Vulcanizer, for three flasks, Gas, Alcohol or Kerosene,	16.00
No. 1, Vulcanizer, with Union Kerosene Stove,	13.25
No. 2, Vulcanizer, with Union Kerosene Stove,	15.25
No. 3, Vulcanizer, with Union Kerosene Stove,	17.25

THE HAYES VULCANIZER.—THE HAYES COPPER BOILER consists of a copper pot, a cover containing the packing joint, and a collar,



Pat. Mch. 5, '61; July 8, '62; Apr. 3, '66.

which screws upon a threaded ring which encircles the pot, and bears upon the cover to tighten the joint by means of three set-screws, which are plainly shown in the engraving. This fastening has proved to be the most substantial of any, and can be recommended as *absolutely steam-tight*.

The thermometer bulb is immersed in HAYES' PATENT MERCURY BATH, by which it is perfectly protected from the corrosive action of the steam.

Two sizes of the Hayes Copper Boiler are made, which are respectively, 4 inches and 4½ inches in diameter. The 4-inch size, which is generally employed by dentists, can be furnished to take one, two, or three flasks, as desired. The 4½-inch size is kept in stock either for two or three flasks, and can be made of extra length for special purposes.

THE IRON CLAD BOILER is made precisely like the Copper Boiler above described, excepting that the copper pot is covered by a shell of malleable iron strong enough to withstand many times the pressure of steam used in vulcanizing. It may, therefore, be safely used, notwithstanding the weakening of the copper by corrosion. It is only made of 4 inches diameter, for one, two or three flasks.

We have succeeded in effecting arrangements with the manufacturers by which we are enabled to furnish a SPECIAL PATTERN OF KEROSENE STOVE with our vulcanizers, without the advance in price heretofore made in furnishing the Union Stove. This stove has a four-inch wick and will be found an efficient heater, much preferable to those heretofore used. This stove will always be furnished with this vulcanizer, unless other heating apparatus is specified. The Union Stove, if ordered, will be extra as before, viz.: No. 1, \$1.25; No. 2, with two wicks, \$1.50.

PRICES.

No. 1, Copper, Gas, Alcohol or Kerosene,	\$12.00
No. 2, Copper, Gas, Alcohol or Kerosene,	14.00
No. 3, Copper, Gas, Alcohol or Kerosene,	16.00
No. 2, Large Vulcanizer, 4½-inch diameter,	20.00
No. 3, Large Vulcanizer, 4½-inch diameter,	22.00
With Union Kerosene Stove, extra,	1.50
No. 1, Iron Clad, Gas, Alcohol or Kerosene,	15.00
No. 2, Iron Clad, Gas, Alcohol or Kerosene,	17.00
No. 3, Iron Clad, Gas, Alcohol or Kerosene,	19.00



Patented April 3, 1866.

THE PEER VULCANIZER.—

The cover is secured by three bolts, pivoted in a ring surrounding and securely brazed to the edge of the pot. As will be seen by reference to the engraving, they can be thrown out of the way when it is desired to move the cover, by merely slackening the nuts.

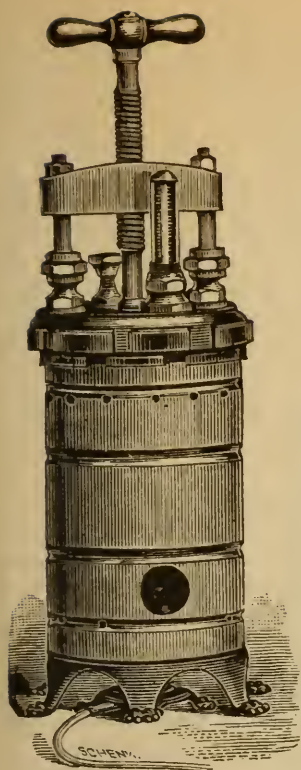
Only one size of this vulcanizer is kept in stock, viz.: 3¾ inches diameter, for two flasks.

Hayes' Patent Mercury Bath is adapted to this vulcanizer, by which the liability of the thermometer to accident is much decreased. It is also supplied with the B. D. M. Co.'s safety disc apparatus.

The heat is applied by either gas, alcohol or kerosene. The B. D. M. Co.'s special pattern of kerosene stove is adapted to this vulcanizer, and will be furnished with it unless other heating apparatus is specified in the order.

PRICES.

No. 2, Peer Vulcanizer, Gas, Alcohol or Kerosene, \$14.00	
Union Kerosene Stove, extra,	1.25



Patented May 25, 1875.

THE EDSON VULCANIZING AND CELLULOID APPARATUS COMBINED.—Desirous of keeping the profession supplied with all improvements in vulcanizing apparatus, we have made arrangements to supply the Improved Edson Vulcanizing and Celluloid Apparatus as shown in the annexed cut.

The flasks are closed inside the boiler after steam has been generated therein, by means of a screw and cross-bar, which operate a clamping apparatus. This apparatus is provided with a mercury bath thermometer.

The clamping apparatus has lately been remodeled and strengthened, and the lower end of the screw is now attached to the boiler head by a cap-nut, so that the clamping apparatus can be either closed or opened by turning the screw.

Our special kerosene heater is furnished with the Edson Vulcanizer unless either gas or alcohol is specified.

PRICES.

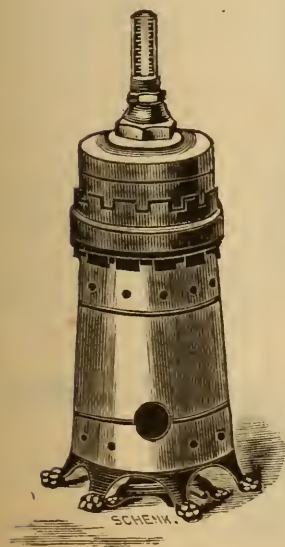
Edson Vulcanizing and Celluloid Apparatus complete, for Gas, Alcohol or Kerosene, \$25.00
With Union Kerosene Stove, extra, 1.50

LARGE SCREW-TOP VULCANIZER.—This is made from the Edson patterns, without the clamping arrangement. It is $4\frac{3}{8}$ inches diameter, large enough to take the B. D. M. Co.'s "Large" flask if desired for dental purposes, and can be made to order, of any depth required for special use, such as rubber stamp work.

This and the Edson Vulcanizer are closed by means of the bed-plate and wrench, Nos. 1 and 2, page 15 of catalogue.

PRICES.

No. 2, Large Screw-Top Vulcanizer, \$16.00
No. 3, Large Screw-Top Vulcanizer, 18.00



Patented May 19, 1868.

THE WOODARD SELF-PACKING VULCANIZER.—The flasks are placed in this vulcanizer without being closed, and are gradually brought together by the pressure of the steam, as the vulcanizer is heated. This is accomplished by means of a piston which receives the pressure of the steam, and operates in a cylinder formed in the vulcanizer top. The flasks are placed in a stirrup which is connected with the piston. The flasks are closed gradually, as the steam pressure rises, and at a higher temperature than when they are closed in the usual way. The rubber is thus rendered softer and more yielding, and one fruitful source of the breakage of blocks is thus obviated.

Only one size of the vulcanizer is made, viz.: $3\frac{7}{8}$ inches diameter, for two flasks. The cover of this vulcanizer screws upon the pot in precisely the same manner as the "Whitney."

Hayes' Patent Mercury Bath is adapted to this vulcanizer, by which the liability of the thermometer to accident is very much decreased. The heat is applied by either gas, alcohol or kerosene, a special kerosene stove being furnished unless other apparatus is specified. The Union Stove, if ordered, is \$1.25 extra.

PRICES.

Woodard Vulcanizer, for two flasks, complete, Gas, Alcohol or Kerosene, \$24.00
Union Kerosene Stove, extra, 1.25

THE HAYES CELLULOID APPARATUS.—TO BE USED



Fig. 1.

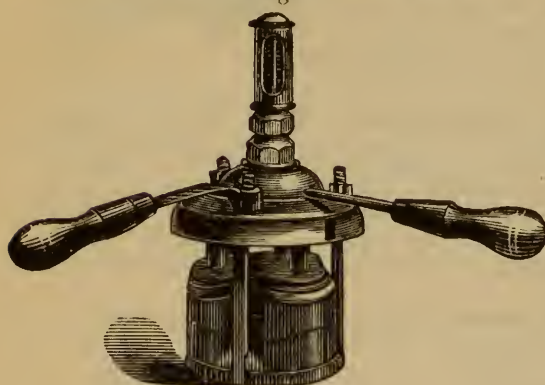


Fig. 2.

WITH THE HAYES OR WHITNEY BOILERS.—The Hayes Celluloid Apparatus was first introduced to public notice about ten years ago, and has met with a constantly increasing sale, which is a good indorsement of its efficiency. It closes the flask by means of three bolts, arranged in a clamp, similar to the Hayes Clamp. It gives much greater facility in the management of the flask than the single screw used in most other forms of celluloid apparatus. It can be used in connection with the Vulcanizer pot and heating apparatus. By the handle, which is permanently attached to the cover, the clamp can be lifted out and replaced with the greatest facility, so that there need be no uncertainty as to whether the flask is fully closed. The machine is well finished and the cover handsomely nickel-plated.

NOTE.—The preferable method of moulding celluloid in this or the Brown apparatus, is to first put the flask into the apparatus, when ready for moulding the plate, and get it thoroughly dry, and hot enough to soften the celluloid. Then remove it, insert the celluloid blank, replace the flask in the apparatus as quickly as possible, and immediately begin to close the flask. Only enough heat will be required during this part of the operation, to retain the flask at the temperature it already has.

The absence of moisture in the plaster has the effect of rendering the celluloid harder and more dense in texture.

PRICES.

Apparatus, complete with two flasks, \$9.00

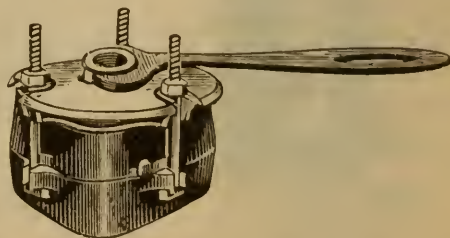
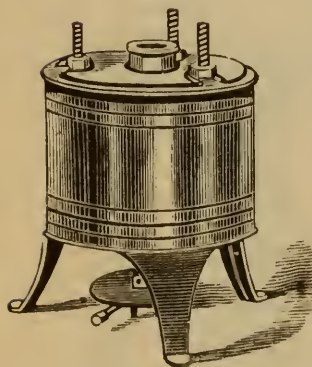
PARTS OF APPARATUS SOLD AS FOLLOWS:

Cover,	3.00
Clamping Apparatus,	2.00
Thermometer and Case,	2.00
Flasks for Celluloid, each,	1.00

BROWN'S IMPROVED CELLULOID APPARATUS.—DRY HEAT.—

Malleable Iron Flasks and Wrenches. This apparatus is recommended as excellent for moulding celluloid plates by the "Dry Heat" process, a short explanation of which will be found above. (See Hayes Celluloid Apparatus,—Note). It will be found a very convenient appliance, and capable of turning out work equal to some much higher-priced machines.

Brown's New Flask is now sent out with the apparatus, by which the difficulty heretofore experienced in removing the plaster is entirely overcome. The flask has a loose bottom, resting on a flange; by rapping on this loose bottom the plaster is removed entire. This feature will be readily appreciated by those who have used dry heat in working celluloid.



PRICE.

Apparatus complete, including one flask, large and small wrench, for Gas, Alcohol or Kerosene, \$8.00

VON BONHORST'S ANÆSTHETIC.

We have recently purchased of Dr. C. G. Von Bonhorst, now of Pomona, Cal., at considerable expense, his famous Anæsthetic and Applicator, with complete apparatus for manufacturing and putting up the same. This anæsthetic is so well known in this vicinity that we only consider it necessary to state that it is again in the market. As to its genuineness we refer to Dr. Von Bonhorst, who has sent all orders which have been sent him since he went to California to us. We call attention to a few of the prominent dentists who have used and can recommend the Anæsthetic.

Having used
Dr. VON BONHORST'S
ANÆSTHETIC

from the time it was first obtainable to the present, I take pleasure in saying I consider it of great utility,

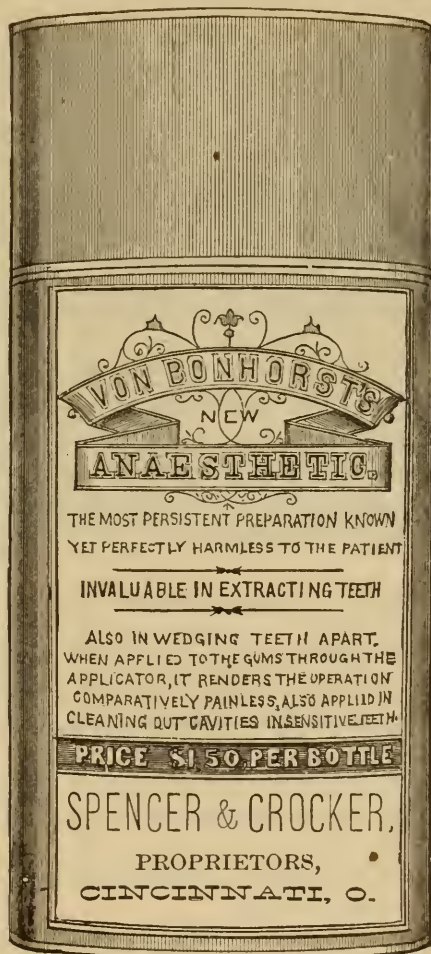
Lessening
the Pain

incident to some of our most severe operations.

CINCINNATI, February
7th, 1884.

A. BERRY, D. D. S.

President of Mad River Valley
and Ohio State Dental Societies



have treated a score of

Exposed Nerves

both those that follow excavating, as well as those exposed from decay, and

Not One Failure.

All treated by the aid of your preparations.

D. R. JENNINGS, D. D. S.,
Ex-President Ohio State Dental Society.

My experience with your goods is similar to that of Dr. Jennings.

PROF. J. TAFT.

C. BRADLEY,
Dayton, O.

V. F. ELLIOTT,
Minneapolis, Kan.

I. WILLIAMS,
Ex-President Ohio State Dental Society.

The above illustration shows style of package and label—about two-thirds size.

Price of Anæsthetic, per Bottle, - - - - - \$1.50.

Price of Applicator Reduced to - - - - - 1.50.

SPENCER & CROCKER,

OHIO DENTAL AND SURGICAL DEPOT,

TRADE SUPPLIED.

CINCINNATI, O.

THE SNOW & LEWIS AUTOMATIC PLUGGER.

Patented October 24, 1865, October 30, November 20, 1866, June 23, 1868, and June 1, 1869.
Patent of October 30th, 1866, re-issued August 22, 1876, February 2, 1880.

THE MOST POPULAR AND EFFICIENT DENTAL INSTRUMENT EVER OFFERED TO THE PROFESSION.

This instrument, since its invention in 1865, has been improved from time to time, and has become one of the best known and most indispensable adjuncts to the dentist's operating case. It is now made after two patterns, the old and new style. The "old style" of instrument has

TWO DISTINCT GRADES OF BLOWS,

one-eighth and one-quarter inch, regulated by means of the ring on the body of the instrument; the finer graduation of the strength of the blow being attained by turning the milled head at the end of the case.

The "new style" embodies an improvement, by which all lateral motion between the socket-piece and its bearings is prevented, and future wear between the parts provided for. This insures

PERFECT STEADINESS OF THE POINT,

which can now be placed as desired with the same certainty as with a hand instrument. The new instrument has but the one-eighth inch length of blow, which can be varied in strength, as before, by the milled bead at the end of the case. By means of the ring on the handle, either of

THE PLUGGERS CAN BE LOCKED,

and used as a hand instrument. The above feature is not presented in any other Spring Plugger in the market.

The mechanical devices of the Plugger are protected by patents, embracing all points of any moment applicable to Automatic Pluggers, and we hardly need say that we shall strictly enforce all the rights secured to us therein.

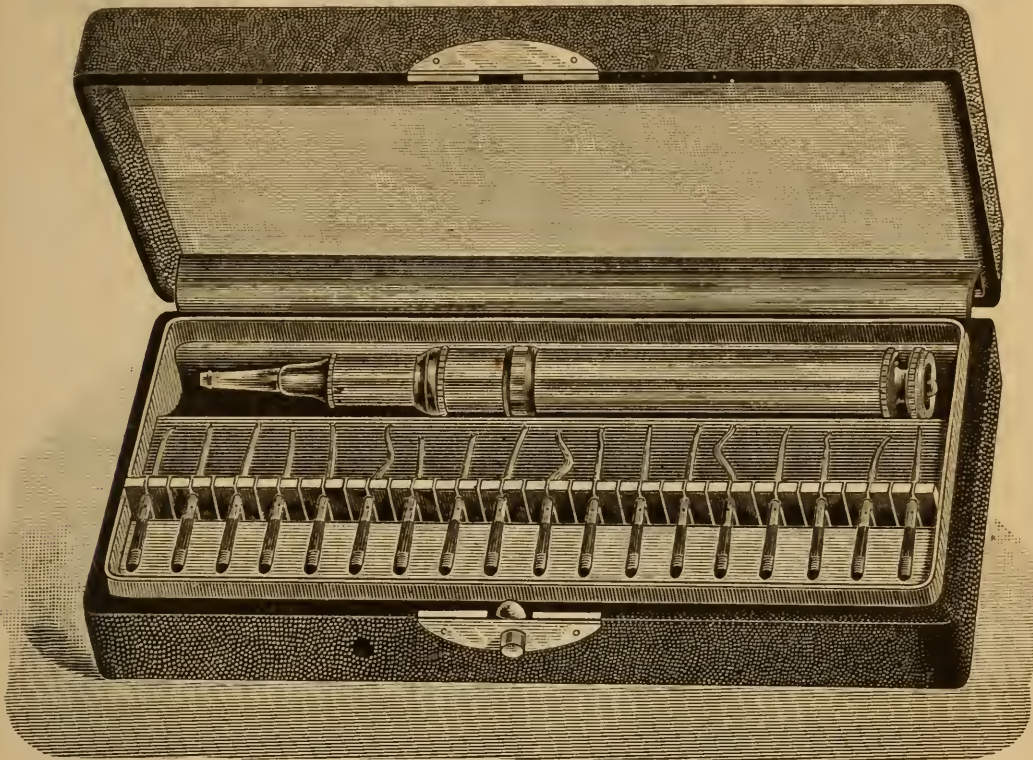
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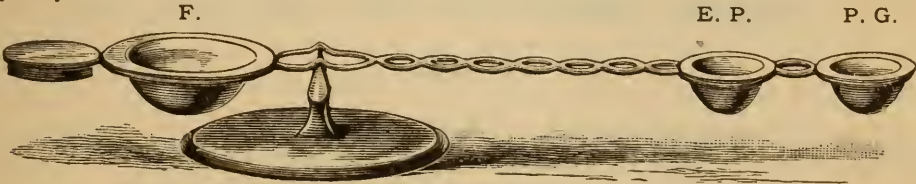
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THE DENTAL ADVERTISER.

VOL. XVI.—BUFFALO, N. Y., OCTOBER, 1885.—No. 4.

A FACTOR IN TOOTH-PRESERVATION.

BY C. N. PIERCE, D. D. S., PHILADELPHIA, PA.

An Address before the New Jersey State Dental Society, July 16, 1885.

Mr. President and Gentlemen of the New Jersey State Dental Society :

I fear that I am trespassing a little upon your good nature in coming before you without a written essay, but my time has been so limited in preparing for this occasion that the very best I could do was to arrange some thoughts and give them to you as well as practicable under the circumstances. In answer to an inquiry from my friend, Dr. Palmer, as to the title of my subject, I wrote him that it would be a "Factor in Dental Caries," but I subsequently changed it to the more intelligible one announced by your president today, "A Factor in Tooth-Preservation ;" and I am under obligations to my friend, Dr. Atkinson, for opening the way for me last evening, by his opportune remarks on the prophylactic influence of function, because that has been really the subject of my thoughts for the last three months, and was the point I endeavored to make in my remarks a month ago on the comparative anatomy of the teeth before the New England and Connecticut Valley Dental Associations at Worcester, Mass. What I shall endeavor to do now is simply to elaborate the remarks of Dr. Atkinson last evening, and confirm them with some illustrations of development of the teeth of the lower animals, hoping with these to leave an impression upon your minds which will not soon be erased.

First, a word or two upon dental caries. If you ask the numerous teachers in this country to formulate an answer to the inquiry, What is dental caries? they will probably tell you that it is molecular death and disintegration of the tooth-tissue. We will not stop now to discuss the correctness of this answer. It is one that has been almost universally given to classes in dental schools, as well as in the meetings of dental societies. Molecular disintegration we have, but that this is preceded by death is doubtful indeed, and this one point in this pathological phenomenon is well worthy of consideration by any dental society. Many theories have been advanced by thoughtful men regarding the cause of this pathological condition designated dental caries. First, it was held that it was wholly due to chemical action; and there are men today who take the ground that that is the only cause. They claim that there is some solvent (an acid) in the mouth which comes in contact with the tissues of the teeth, breaking up the continuity of the structures and dissolving out the lime-salts or inorganic portion. Then, there are others who take the other extreme, and assert that dental caries is the result of vital action; that through some deficiency in nutrition and other abnormal systemic conditions there is a loss of continuity between the hard or inorganic and the soft or organic structures, and in consequence of that loss of continuity the dissolution of the teeth naturally follows. Another theory is that the cause of decay is chemico-vital; that perverted or imperfect nutrition during the calcification of the hard tissues results in abnormality, both as to quantity and quality, this being a predisposing cause of caries, the teeth then becoming an easy prey of some solvent in the mouth, which is assumed to be an acid. We have, also, within the last few years, had advanced by our friends abroad as well as at home what is termed the parasitic theory—that decay is produced by certain low forms of vegetable or animal organism in the mouth, some of which, by their roots or mycelium, burrow into the tissues of the teeth and leave them in a condition to readily break down, and that other organisms, by virtue of their contact with the oxygen of the atmosphere, eliminate an acid, and in that way we have a solvent produced by these which disintegrates the tooth-structure. These latter theories entirely overlook the fact that many of these organisms are merely messmates; that they live in the mouth by virtue of the pabulum on which we also live, and are not parasites at all—living on the remains of our food, on dead and refuse material, and not interfering with the live tissues in any way. Then we have still another theory, that advanced by Dr. Bridgman in England, called the electrical theory; that it is by reason of a want of correspondence in the electrical conditions of the organic and the inorganic structures that the teeth are broken down.

The fault I find with all of these theories is, not that they, or most of

them, have not some grain of truth in them sufficient to warrant their advancement as elements in the problem of decay, but that it is claimed by their several and special advocates that they are *the* element. In attributing dental caries to any one of these supposed causes, we seem to entirely ignore the laws governing the development and nutrition of structures.

When a tooth is developed, it is in accordance or in correspondence with law, like other tissues. Its morphology, its structural arrangement, its density, its size, its location, all are subservient to its function and nutrition. If function is delegated to some other part or organ, nutrition is likewise diverted. Health and normality in any and every respect must be preceded by normal or natural exercise of function. The arrangement of the tissues, the size, shape, and density of the teeth are not matters of whim or accident, but are due to the natural result of the mechanical forces that have been brought to bear upon them; they are the result of the degree and direction of force that has been exerted upon them by the food habit through many successive generations; they are in exact correspondence with the amount and direction of force that has been and is exercised in the preparation of the food, or in the exact ratio of the amount of resistance offered by the trituration of the food upon which the animal lives. This brings tooth-formation down to the single point of food habit, and in my estimation *tooth-formation and nutrition are the result of food habit.*

In the treatment of the mouths of many children we see unmistakable evidence of this absence of function. We risk nothing in saying to the mother or guardian of many of these patients that the food is washed into the stomach with one of various liquids without mastication, and we may with safety and great propriety add that, unless there is some change in the food habit of this child, our success in the direction of tooth-preservation will be but limited. Fluids must be restricted at meal time. Solid food must be substituted for the semi-solid, and the eight or ten minutes usually occupied in the consumption of a meal must be extended to twenty-five or thirty minutes. I say constantly to the parents of my young patients: If you want to save this child's teeth, you must banish drink from the table during meal time; let the children drink all they want before and after meals, but at meals the food should be taken as nearly dry as possible, and let the child spend half an hour or more in its mastication, utilizing the natural secretions; not washing down its food with copious draughts without an effort on the part of the teeth to triturate and prepare it for the subsequent digestive process. I bring up this point here because I want to make it more clear that, in my estimation, the loss of function is one great cause of this rapid decay of the teeth. The healthy or normal development of the teeth is exactly in proportion to the stimulus

of the resistance that is offered to them in the cutting or mastication of food.

Now, gentlemen, a recognition of the foregoing is what interests *us* as dentists, and in behalf of our *patrons* or *patients* for their own welfare and comfort. In continuation of my remarks, I hope, with the aid of these specimens upon the table before us, to show you how these various tooth-forms have been the result of jaw movements, and these movements, again, a necessity by virtue of the kind of food; and so in regular succession, we can safely say, first, that food habit has been the important factor and controlling influence in shaping tooth-forms; second, that the restriction and limitation of diet has contributed to specialization of the teeth; third, the degree in which teeth are changed or modified in form and structure is in proportion to the differences in the degree of resistance to be overcome in the mastication of food.

For the sake of perspicuity, and at the risk of being tedious, let us first define a tooth, with its location, function, etc.

The definition given is, that it is a hard substance projecting from the surface of the mucous membrane; it is differentiated from the surrounding structures, and opposes another tooth, or a dental plate, or else in its function works against some other substance less dense. It is located in the anterior or pre-assimilative portion of the alimentary canal, and in the mammalia it is confined to the inferior and superior maxillæ, always working in a vertical or modified vertical direction, and against other teeth or some dense substance, so as to stimulate its nutrition and health.

All teeth may be arranged into five classes. First, the simple cone-shaped tooth which is represented in the cuspid of the carnivora, the prehensile teeth of all animals swallowing their prey whole, and a large class of fishes, as well as the poison-fang of reptiles and the teeth of the sperm-whale. These are among the simplest forms of teeth found in the animal economy. The next would be a chisel-shaped tooth, examples of which we see in the incisors of the rodents and other vertebrate animals. In the third class we place the trenchant-shaped teeth seen in carnivorous animals, which shut over each other like the blades of a pair of scissors, and are for lacerating or tearing. Then come the teeth which we find in the monkey tribe, having little tubercles on the triturating surface for crushing. The fifth and last class are the molars, represented by those of the elephant and of the rodents, but the most specialized or typical are those found in the herbivora, used for grinding grass and dry food. Nearly all the teeth of the animal kingdom may be placed in one of these five classes, by a little addition or subtraction corresponding with modifications in food habit and mandibular or jaw movement.

When we pick up a mandible that is armed with cone-shaped teeth, we know very well that its movement is limited to a vertical or up-and-down

motion. The teeth in it are not for the trituration of food, but for seizing it. Corresponding with this cone-shaped tooth and the vertical motion which is found in all carnivorous animals, and which is not a mere matter of taste or accident, but of necessity, because of the class of food upon which the animal subsists, we find the shape of the condyle and the glenoid cavity to correspond—the latter hugging or so adapted to the former as to preclude any other motion. So we see that the food habit controls, not only the movements of the jaw and shape of the teeth, but the form and adaptation of the condyle and glenoid cavity.

We now take the other extreme in shape, represented by the molars of the rodents and the elephant. We find instead of the glenoid cavity a convex surface and the condyle a flat or slightly concave surface, which slides over the convex surface of the glenoid cavity; and this arrangement permits not only a lateral motion of the jaw, but the antero-posterior which is so essential to the rodent. But the food habit of the animal was the first factor or necessity which produced the lateral and antero-posterior motions, and these motions gave us the tooth-form, the condylar articulation of necessity following. We might follow this up through the whole anatomical structure of various animals, and find corresponding results in the digestive organs as well as in the modes of progression of the animals.

The teeth of the mammalia, and indeed nearly all of the vertebrata, are made up of three tissues—dentine, cement and enamel, the enamel-germs being present in all. In a large class of animals, as in man, these tissues are arranged with the dentine in the center, the enamel covering the dentine of the crown, and the cement covering the dentine of the root. This is the common arrangement in the teeth of all carnivorous and omnivorous animals; and in these animals we find the teeth less specialized than in the herbivora and rodentia, where, instead of having the enamel covering the crown, it is arranged in transverse lines running across the tritulating surface, or the peculiar W-shaped pattern, by a dipping in of the enamel from the sides, as is seen in many of the herbivora. Where there is an antero-posterior motion of the jaw in connection with the lateral, we have these lines running transversely across the teeth, and with this the most complex structural condition. The object of this arrangement is patent to every one—the three tissues being of different degrees of density, and standing side by side, there will always be an uneven surface, with the most dense tissue prominent, which is most efficient in the preparation of the dry food upon which the animal subsists.

Again we recognize that this peculiar adaptation of the teeth to the necessities of the animal is the result of food habit. There is no exception to this rule. It is the force exercised upon the teeth which modifies their form and structural arrangement.

If you will bear with me a few moments, I will show you how true this is throughout the animal kingdom. Taking, first, some illustrations from the invertebrata—animals without a back-bone—their teeth are with few exceptions not dense, but shaped by food habit and jaw movement so as to be efficient in mastication. Commencing with this little animal which I hold in my hand, and with which we are all familiar, the echinus, designated Aristotle's lantern, because first described by him, we find that it has five teeth and five jaws, moved by thirty-five muscles. It subsists upon shell-fish, and by the movement of these teeth, with sharp, cutting edges, it drills a hole in the shell of its prey and sucks out the juices. The echinus is an animal with primitive nervous organization, yet it has sense enough to have good taste, and by its liking for shell-fish does considerable injury to the business of the oysterman. This is one of the most complex arrangements of tooth-structure that is found in the animal economy.

Our next illustration we take from the common leech. We are all familiar with the manner in which this articulate makes its wound. The animal has three jaws, which are simple semi-circles, and are armed with teeth or denticles, not for mastication, but for cutting the flesh of its prey, and making a wound from which the animal draws the blood upon which it lives. It shows the adaptation of teeth to the necessities of the animal. The drawing upon the black-board shows the jaws attached to the second segment, and so arranged as to make a tri-radiate wound. Among the intestinal worms, I may instance the tape-worm. You all know how difficult it is to dislodge this disgusting parasite from the alimentary canal. It has a circular mouth, armed with little hooks, which seize hold of the walls of the alimentary canal, and hold fast while the animal sucks the juices upon which it subsists. In that way these hook-shaped teeth aid the animal in obtaining its nutrition.

Then we come to the mollusks, of which the varieties described may be numbered by the thousands. We may divide them into two classes, those with and those without heads. The headless ones have, of course, no teeth; while the food habits of some with heads are without the necessity for teeth, and hence they are edentulous. But in those that have teeth we find the variety in shapes corresponding with the difference in diet; so, as the little mollusk lives upon vegetable, animal, or liquid food, the teeth quite as readily correspond to its necessities as do those of the vertebrate series to theirs. So in these, again, we have this selective influence of function, giving us structures in these plastic animals which are as fully adapted to their needs as are those enjoyed by the higher animals—*teeth modified in shape, substance, and arrangement by food habit*. The different materials upon which the teeth are required to act and the different movements of the tissues in which they are implanted tend to pro-

duce that peculiar shape and structure which is most efficient for their nutrition.

Passing to the vertebrata, we have a large class of vertebrate animals whose teeth we know have been either modified or wholly lost by reason of changed food habits. Birds today have no teeth, yet Professor Marsh, of Boston, has described some fossil birds which were furnished with well-developed teeth like those of other vertebrates. There is an immense variety of fishes, which are placed by Professor Marsh in five great classes: the leptocardia, mar-ipobranchii, elasmobranchii, ganoidei, and teleostei. The first of these, described by Haeckel as the acrania (without a skull), have no teeth, while the others have almost an endless variety. The mar-ipobranchii, of which the lamprey are examples, have pointed, horny teeth. The elasmobranchii, embracing the rays, saw-fish, sharks, etc., have teeth with sharp points peculiarly adapted to their habits of life; and so on throughout the whole series, furnishing a greater variety of tooth-formation and attachment than any other class of animals.

Before leaving the fishes I want to direct your attention to this little toad-fish which I hold in my hand. We find the body covered with spines, and a similar one in each jaw, except that their location has given them a different function, and they have become modified by virtue of it. This is an illustration of the dermal origin of the teeth, and is equally well shown by a newly-hatched dog-fish, where at this age you can scarcely distinguish the spines located on the jaw from those on the dermal surface. These, becoming modified by function, soon present a different appearance.

Next we come to the reptilia. They have but few teeth. A poison-fang is remarkable for the peculiar arrangement for conducting the poison into the wound made by it. It would be much like taking an ordinary tooth, with the enamel and dentine on it, and rolling it out flat and doubling it upon itself, the pulp cavity occupying its normal position. In folding it over we get a semi-canal connected with the sack of poison-fluid at the end of the root. The direction of the tooth is horizontal when at rest, but when elevated to pierce the prey a membrane is drawn over this semi-tube, so that it makes a complete canal, and as the animal strikes its prey the pressure upon the sac at the root ejects the fluid through the canal into the wound made by the fang. Another peculiarity is that we have an endless succession of these fang-germs, so that when one is lost another is developed in its place. This is true of nearly all the fish series—where teeth are lost by violence or injured by wear, new teeth soon take their place.

I have here a peculiar specimen, which represents the edentata or insectivorous animals, an ant-eater, which is deficient in front teeth. The molars it has are little round pegs, made of dentine without enamel. The

front teeth are deficient, yet in some of this group there is a lateral incisor, and in nearly all there are germs of both lateral and central incisors. They have not been developed for generations, yet the germ being present, represents the original idea and form of development, although it is aborted. Loss of function has greatly modified the teeth of this animal; the relegation to the tongue of the function of the incisors has made those teeth no longer necessary; hence they have disappeared, only the germs remaining to indicate the former type. The posterior teeth, having no hard substances to grind, have wholly lost their enamel; they are specialized for the service of the animal. This is not the true armadillo, although allied to that family.

As teeth are specialized by function and adapted to certain kinds of food, they are usually reduced in number; so, also, as we go up in the scale of intelligence from the lower to the higher, increased brain development seems to have a similar influence, the ancestral animal usually having had a greater number. Relegation of function brings diversion of nutrition.

Next in order comes a class of aquatic animals, which includes the sirenia, or sea-cow, an herbivorous animal living in the water, and which is furnished with molars adapted to its diet. To this class of aquatic animals belongs also the spermaceti or sperm-whale, whose teeth are strong and cone-shaped, giving us the idea of prehensile use, and ranging in size in correspondence with location in the jaw, the heavier ones being located nearer the articulation. Its prey is seized and swallowed whole.

In the mysticetus, or right whale, *balænoidea* (the largest mammal), we find a set of teeth in embryo, but they are functionless and absorbed before birth. At birth, in place of teeth are developed thin plates that run transversely across the jaw, some two hundred in number, and varying from ten to twenty feet in length. These great plates, which furnish the whalebone of commerce, are attached to the upper jaw, and form a sort of fringe on their lower edge, in which, as the animal swims through the water with open mouth, thousands of small, jelly-like animals which abound therein become entangled. The water being expelled, these are transferred to the œsophagus of the whale and become its food. These plates are an adaptation of teeth specialized to the needs of the animal, and serve it in its nutritional demands.

In the quadrumana, embracing the lower monkeys and lemurs, we have teeth for crushing fruits—tubercular teeth, and very closely allied to those of the human family, but somewhat different in form, and in some greater in number, the cuspids being more prominent and serving the males for weapons in combat.

Then we come to the anthropoidea, a group that embraces man as well

as the higher apes. This group has teeth alike, save in the prominence of the cuspids; but in this ascent in the scale towards man we lose some of the teeth, the lemurs and lower monkeys having thirty-six, while the anthropoidea have but thirty-two. And it is a question worthy of consideration whether the frequent absence of the third molar in the human family is not in the same line of reduction; absence of function sending the nutritive current to other localities.

It is probable that, with a continuance of our present diet and manner of living, it will not be many centuries before man will have twenty-eight instead of thirty-two teeth. It is also probable that this reduction will be facilitated by the effort of specialization, which is constant.

Man is an omnivorous animal, and in his mode of living his teeth are not subjected to the use or kind of diet which is best calculated to insure their health. If we had the opportunity of examining any large class of people who were now and had been for some centuries confined to a limited diet, with little or no animal food, we should expect to find incisors well developed, cuspids somewhat suppressed, and molars assuming a more herbivorous type, having cutting tubercles, and showing a tendency to the infolding of the enamel.

We do know that during the period in this country when the negro of the South was confined to a coarse diet he had fine incisors and strong molars. His cuspids were not more prominent than is seen in the higher races. This we should attribute to the fact of his diet being largely granivorous and coarse. You know that in all strictly herbivorous animals the cuspids are either entirely deficient or are merely present in a transitional form.

The carnivorous animals, whether aquatic, terrestrial, arborial, or fusorial in their habits, or whether occupying the polar or equatorial regions, are alike true to their cuspids and carnivorous molars—illustrating again the influence of food habit.

The rodentia, of which this beaver is a very good type, have finely-developed incisors growing from permanent pulps, and molars with transverse lines of enamel. These forms are the result of the gnawing habit which necessitates the antero-posterior movement of the mandible. Accompanying this is also the peculiar arrangement of the three hard tissues of the teeth, which always gives the incisor a sharp, cutting edge, by placing the enamel, which is most dense, on the external or labial surface; the dentine next; and the softer tissue, not unlike cementum, on the internal or palatine surface.

Now, Mr. President and gentlemen, I might continue these illustrations through every modification of the animal kingdom, and show you that, whenever there is a differentiation in the food habit, there is a corresponding one in mandibular movement, which is accompanied by a tooth-forma-

tion resulting therefrom, and that the condylar attachment or articulation is so constant and true to the mandibular movement and tooth-form that, when once recognized, there would be no difficulty in describing the movement of jaw and tooth-form belonging thereto.

In recognizing the conditions which induce morphological peculiarities and modifications in dental structures, we certainly have some light thrown upon a condition which might induce tooth-degeneration—in the one case functional activity, followed by healthy nutrition; in the other, functional inactivity, or the absence of function, followed by diversion or relegation of nutrition to other localities.

In conclusion, gentlemen, let me once more impress upon you the importance of the influence of function as a prophylactic agent, and suggest that, in our duty to our patrons, we can render them no better service than by enlightening their understanding to this extent.—*Dental Cosmos*.

SOME METHODS OF SEPARATING TEETH WITH WEDGES.

BY DR. DWIGHT M. CLAPP, OF BOSTON.

Read at the joint meeting of the Massachusetts and Connecticut Valley Dental Societies, held at Worcester, Mass., June, 1885.

Among the many disagreeable and annoying, not to say painful, things that patients have to suffer at the hands of dentists, nothing, perhaps, is received with greater dread and disgust than the announcement that the teeth must be "wedged" before filling. Some, a small minority among us, I think, always fill without previous separation. In regard to the necessity for it, I will enter no argument here, but only say that personally I am a firm believer in wide spaces between the teeth at their necks, and labor to the best of my ability to obtain this result. It is most likely that many of you are using the same means that I am to get the desired room for filling, but by presenting and discussing the subject, it is possible we may obtain some help in doing what I fear the most of us find, at times, difficult and perplexing. For a long time rubber was about the only thing used for separating. It has some good qualities and many bad ones. It probably causes more pain and annoyance to the patient than any other wedge. Its liability to slide into contact with the gum, causing great pain and soreness, and even suppuration, has caused me to entirely abandon its use. I am willing to admit that it may be used successfully sometimes. The best rubber to use, if it must be used at all, is that of which the most inelastic tubing is made, or the erasers sold by stationers, cut into suitable shape. Wedges of wood are well adapted to

cases where the sides of teeth to be wedged are nearly parallel, or where there is less space at the gum than at the points of the teeth. The wedge should be about as wide as the length of the crown, that is, it should extend from the cutting edge to the gum, nearly. It should be so shaped and trimmed as to not irritate the tongue or cheek. One advantage of the wooden wedge is that it is more cleanly than tape, cotton, or silk. This same class of teeth, those with nearly parallel sides, can be separated as successfully, and I think with less pain, with tape. Linen tape of various widths and well waxed is the best. It should be folded so as to be of the proper width and thickness, and then drawn into place. A sharp knife is preferable to scissors for cutting off the ends. The tape should be thoroughly waxed, which assists materially in getting it between the teeth, and renders it more cleanly when left in the mouth several days. In teeth with cavities so situated that cotton can be crowded in with sufficient force, this is one of the best wedges that can be used, as regards both effectiveness and comfort. It is necessary to so place the cotton that the force of expansion will be exerted against adjoining teeth and not expanded within the cavity. By once changing the cotton, space enough can generally be obtained. It is difficult to adjust and keep wedges in place between teeth having more or less space at the gum, and touching only at a small point near the cutting ends. It is in these cases that ligatures of various kinds serve an admirable purpose. Take, for instance, the superior central incisors. These usually have but a small point of contact, with considerable space between them at the gum, and it is very difficult to put in a wedge of rubber, wood, or tape, that will not slip up against the gum, or come out altogether. If a ligature is used, the knots can be so tied that the string will clasp the point of contact in such a manner as to hold it quite firmly in place. There are many ways of making the knots; one is to pass the silk once between the teeth, then tie a surgeon's knot; but, before drawing it up, pass one of the ends again between the teeth, and then draw the knot so it will wedge from the gum towards the cutting ends; draw it closely, then finish by tying so that the last knot will be at the labial, or palatal side of the teeth. Another way is to make a series of knots like a chain stitch in crochet work, thus enlarging the silk for a suitable length; draw this between the teeth and tie as before, omitting the first knot that is drawn between the teeth. Another, and a very good way of enlarging the ligature, is, after well waxing it, to roll a little cotton around the silk as you would around a broach for wiping out a root canal, and draw this between the teeth and tie the same as when the silk is knotted. Still another method, easy of application and very effective in almost all cases where there is a cavity in one or both of the teeth, is to secure a pellet of cotton with the ligature. The silk is placed between the teeth in some of the before-mentioned

ways ; a pellet of cotton is forced into the cavity, projecting against the adjoining tooth, then the silk is tied firmly around the cotton. The swelling of the cotton and silk will make all the space necessary between any of the front teeth with but one application. The bulging of the cotton into the cavity or cavities, caused by tying the silk around it will hold it securely in place. This makes by far the most satisfactory wedge I have ever used, and, so far as I am aware, is original with me. It is sometimes well to open the cavity slightly with an excavator or chisel before wedging, so that the cotton will be more readily retained. For bicuspsids and molars more than one application may be needed if much space is required. Quick wedging is sometimes possible, and when it can be done readily is usually desirable. Teeth that move easily may be separated sufficiently for ordinary operations by placing a wedge at the point of contact, and another near the gum, applying force gently with the hand, or light blows with a mallet, first on one, and then on the other, until wedged enough. Then remove the wedge that interferes most with the operation, leaving the other in place. Another way that often works well with children and with teeth that move readily, is to insert a large piece of rubber and let it remain from fifteen to twenty minutes, when the rubber will have opened a considerable space. A wooden wedge will keep the teeth from springing together while the work is being done. The appliances designed by Drs. Perry, Bogue and others, for making rapid separations, I have not used, but hear favorable reports in regard to them. Having spoken of rapid and semi-rapid separations, it is left only to speak of a method which works very slowly. It applies, as a rule, to the bicuspsids and molars only. In many cases where there are large cavities between these teeth, and often, when it is desirable that they should be filled with what I think is very properly called a "treatment filling," it is well to fill the entire space between the teeth with gutta percha. In the course of a few months the process of mastication will force the gutta percha toward the gum, and on removing what has not worn away the teeth will be found well separated, the cervical margins well in view, and the cavities in good condition for a metal filling.—*Archives of Dentistry.*

AS TO THE operations that you undertake, especially those of a conservative character, strive to aim always at thoroughness and extreme nicety and precision. And in doing so, put aside, at first, all thought of rapidity in your work. Quickness in operating is an excellent thing, and a thing to be sought after, but it is not worth having if obtained at the expense of accuracy and thoroughness, and it is to the acquisition of the latter qualities that all your energies should be at first directed.—*Leonard Matheson, L. D. S. Eng., Manchester.*

THE DEMAND FOR MENTHOL.

When menthol was first placed upon the market, now some two years since, in the shape of pencils, it was received by the public with more than ordinary favor, and the most sanguine hopes of the manufacturers were more than realized. The manufacture of these pencils in sufficient quantities to meet the demand naturally led to considerable inquiry for menthol, which enhanced in value considerably and rapidly in consequence, and sales to manufacturers were frequent at about sixteen dollars per pound. After the popularity of these pencils was in a measure assured, their manufacture was undertaken by a number of firms and importers, and imports of menthol showed a decided increase.

With the advent of the warm weather of the summer months came many complaints from customers of the damaged condition of their supplies, and the manufacturers, upon investigation, found that the menthol from which they had been made was not sufficiently free from oil to stand the heat, and this caused them to experiment here in order that they might find a means of freeing the crystals as imported, from the small percentage of oil that they contained, which was sufficient to cause no small amount of annoyance and expense. After a number of attempts their efforts were crowned with success, and the pure menthol cones or pencils of today are proof against heat up to one hundred and twelve degrees Fahr. Attempts were made by some manufacturers to adulterate with wax and other foreign matter in order that their goods might keep as well as those made by the manufacturers who were successful in their treatment of menthol. But these productions, though of a more attractive design perhaps, proved less efficacious and their popularity was of short duration. The moment any foreign substance is compounded with menthol, its efficiency is impaired. Hence the unsatisfactory results derived from the use of some pencils, which doubtless, in a measure, account for the diminished demand made upon importers.

After all, however, the most important causes for the decline in menthol, are without doubt the greatly increased production in Japan, and the fact that the ailments for which menthol pencils are used are peculiar to cold weather. The use of pencils is so recent that there exists no last year's experience upon which to compute the difference in demand between the summer and winter months. We believe, however, that this difference will go far to explain the fluctuations of prices. The menthol obtained from American oil has a very fine white appearance, but differs considerably from the Japanese in physical and medicinal properties. The yield of menthol from American oil is said to be but about ten per cent. as against sixty per cent., which the Japanese is reported as containing.—*Condensed from Oil, Paint and Drug Reporter.*

MENTHOL IN DENTISTRY.

BY C. E. H. PHILLIPS, D. D. S., NEW YORK.

Any addition to the list of dental remedies that assist in combatting disease and relieving pain is always desirable. Presenting some claims for consideration and trial is the "Peppermint Camphor Menthe," more generally known as "Menthol." In the March number of the *Independent Practitioner* appears a report of the gratifying results attending the use of a solution of menthol in cases of pericementitis and alveolar abscess, by a dental practitioner; also stating that Dr. Hungerford, a physician, had relieved an aching tooth with the same agent.

Not long since a patient presented himself at my office for a general inspection of the teeth, and directed attention to a superior bicuspid, which had given much pain. Having a menthol "pencil," the patient had endeavored to relieve the disturbance by applying the same upon the face over the offending member, but with no result save the cold sensation produced by the volatilization of the agent. The pain having become more severe, the patient then raised the lip and applied the pencil directly to the gum. Here the sensation produced was described as warm and grateful, with a marked diminution of pain in a short time, which, after a second application, entirely ceased. I have employed the solution from the formula suggested in the journal, both simple and combined with other medicaments, with good results.

In cases of facial neuralgia, as a topical application over the nerve track, it is often highly gratifying, and particularly is this the case when the cause originates within the oral cavity, where it may at the same time be employed.

A trial of a *good* menthol preparation will place it in the medicine case of the dental practitioner as an agent of no little value.—*Independent Practitioner*.

LOCAL ANÆSTHETICS.

The facility of producing local anæsthesia has always been a great need in surgery. The most successful of the earlier attempts in this direction, —the freezing spray—was attended with several inconveniences, and although the use of nitrous oxide and rapid respiration offered very satisfactory substitutes for the greater anæsthetics in short operations, yet they were still open to objection. The enthusiasm which prevailed a few months ago, when the striking properties of cocaine were announced,

was evidence that it filled a wide-spread want. It is gratifying to know that extended experience has not seriously impaired the estimate which was first placed on its merits, but that its properties as a local anæsthetic are well marked and uniform. The field, however, is such that we can easily receive additions, and it is interesting to note that very lately two new agents, similar to cocaine, have been added. In another column will be found a note on the local use of menthol, and in a recent number of the *Therapeutic Gazette*, Dr. Thomas J. Mays, of Philadelphia, has detailed experiments which show that the alkaloid brucia has distinct local anæsthetic powers. This observation is interesting from two points of view. It is gratifying to know that so important a property is possessed by a body which is in abundant supply; secondly, it throws light upon the toxicology of brucia. This alkaloid has always been regarded as analogous to strychnia, but of much less activity. Several cases of brucia poisoning are detailed in the standard works on toxicology, symptoms analogous to those of strychnia being presented. Bearing in mind the fact that the methods of separating proximate principles were originally imperfect, we can see that commercial brucia was little more than impure strychnia. Dr. Mays has pointed out that the only absolutely pure brucia will give the local anæsthetic effects, and that the commercial article gives the physiological reaction of strychnia. It is evident, therefore, that the toxicology of brucia will have to be revised. The co-relation between physiological investigation and chemical analysis is neatly demonstrated by these observations.—*The Polyclinic*.

A MODEL DENTIST.

Who is he? "A dentist, to be successful, must be handsome, or if not exactly that, he must have strong personal magnetism, and be spotlessly clean, with soft white hands always with a faint but pleasant perfume about them, and with a breath like unto—what shall I say? Well, the breath which is absolutely without odor, and which falls on your face like the suspicion of air that is wafted through a vine-covered window on a morning in June. Now, my dentist is lovely, and wears the nobbiest white flannel jackets that you can imagine. His work is good, which is a consideration, to be sure, and his charges are magnificent, which is another consideration of a different character, but then we must always pay high for luxuries, and he is a luxury, as no doubt every other dentist is to his own patients who admire him."—*Paris Morning News*.

UNIVERSITY OF MARYLAND.

The reason why the Dental Department of the University of Maryland deems it inexpedient to join the National Association of Dental Faculties, is set forth in the following letter:

UNIVERSITY OF MARYLAND, FACULTY OF PHYSIC, }
DEPARTMENT OF DENTAL SURGERY. }

BALTIMORE, July 28th, 1885.

To the National Association of Dental Faculties:

GENTLEMEN—The faculty of the University of Maryland, Dental Department, desire to acknowledge the receipt of the "Transactions of the National Association of Dental Faculties," and also the notice of the meeting to be held in Chicago, July 31, 1885, with Article VII. of the Constitution.

I am directed by the Faculty of the University of Maryland, Dental Department, to inform your Association, that they will cheerfully comply with all the requirements relating to graduation of students in dentistry, as adopted at the meetings held in New York City and Saratoga, in August, 1884, so far as refer to two full courses of five months each in separate years, etc., and have published the same in our Annual Catalogue of 1885, copies of which have been mailed to the President and Secretary of your Association. At the same time, however, the Faculty of the University of Maryland, Dental Department, deem it inexpedient to join the National Association of Dental Faculties, for the reason that they believe the present curriculum of study, etc., in the University of Maryland, to be superior to any graded course of study, such as is obligatory upon all dental schools joining your Association, for the reason that the graded course restricts junior students to dental mechanism alone for the one session of the two comprising the full course to the exclusion of operative dentistry, and, therefore, affords dental students the advantage of but one session in the acquirement of a knowledge of a branch of our science for which the time of two entire sessions is not too long.

The Faculty of the University of Maryland, Dental Department, contend that students in dental schools should have all the advantages possible of the two sessions in operative as well as mechanical dentistry, and that the adoption of such a graded course as that required by your Association, and which restricts the dental student in the manner referred to, must be *retrogressive* instead of progressive in dental education.

Respectfully, etc.,

F. J. S. GORGAS,

Dean of University of Maryland, Dental Department.

VULCANIZING.

BY JOHN G. HARPER, D. D. S., ST. LOUIS.

There seems to be less known regarding the vulcanizing of rubber than any other process used by the dentist. In Richardson's Mechanical Dentistry, page 359, we find the following :

"The heat should be raised gradually until the thermometer indicates the proper vulcanizing temperature, when the flame should be lowered and the heat maintained at this point until vulcanization is completed."

I made a number of experiments, all of them disproving the necessity of taking a long time to run up to 320 degrees. A half inch cube of black rubber, run up in fifteen minutes, starting with cold water. Sawed the cube through the middle and found the piece solid. The cube was invested in plaster in the middle of a flask.

I formed Bowstring rubber as nearly as possible the shape of a cube, mounted it on the end of a wire having a coil on the other end, so that it stood upright, holding the rubber near the top of the boiler. Put but little water in the boiler, so that the rubber would be surrounded by steam. Heated to 320°; after vulcanization, sawed the mass through the middle and found it solid.

Not being satisfied, I tried a larger mass of black rubber, that being most liable to become porous in vulcanizing. I took a large lower denture, invested it in plaster in a flask in such a manner as to be removed whole. I filled the entire space with black rubber, run the heat up in fifteen minutes, let it stand at 320° one hour, and, after sawing from one end to the other through the middle, found the entire mass solid and thoroughly vulcanized. The experiments were made with a Hayes' Two Flask Vulcanizer, having a Coolidge Gas Regulator attached. I found that when the regulator turned down the gas, showing a pressure of about 85 pounds, the thermometer only registered 275°, and rose to only 285°.*

On the same page in Richardson is the following :

"Where there is any considerable or unusual body of rubber, the time taken to raise the heat to that point should be extended to one hour or longer, for if the mass is heated too rapidly, porosity or sponginess of the thicker portions of the rubber will almost certainly ensue. This result would seem to be due to the energetic evolution of sulphuretted hydrogen gas under a quick heat, the proper elimination of which is

*A possible explanation of the uniformity of the vulcanized rubber may be found in the use of the Coolidge Regulator, which holds the flame steadier, and is much more reliable than any thermometer.—[EDITOR DENTAL ADVERTISER.]

checked and the gas confined within the body of the mass by a too rapid surface induration of the rubber."

Can any one give an explanation of the above?—*Archives of Dentistry*.

A LADY'S IDEA.

BY MRS. J. R. GREEN.

In the first place, I don't like that air of mystery some dentists possess, not that I care to know *every* dreadful thing that may be going to take place. Just a nice medium is best, I think. A look of comfort always helps the patient. Indeed, if I were a man and ever got consent to cut and carve and pull and twist such tender things as teeth, I'd cultivate a very cheerful look and manner, for truly, with the *real* and the *anticipated* pain of the patient, if the operator feels and looks anxious, it makes an uncomfortable combination indeed!

I have often looked into the eyes bending over me to discover if there was cause of alarm. Nor do not understand me to mean that a man, to be a good dentist, must practice deception and pretend there is nothing the matter always. I just mean that a self-possessed and pleasant spirit is a nice article to have around among so many little instruments of torture.

I remember being in Dr.——'s office once and a small man about nine years old came in to have some very painful broken teeth removed. I asked permission of the Dr. to let me tell him a story during the operation. I told the charming tale of "Hercules and the Three Golden Apples" in my very best and liveliest style. The awful clicking of the instrument, and a little shudder of the baby in the chair, caused me to redouble the interest of the story. Now I declare to you *not one groan* escaped the small sufferer. I could hardly believe that the work was over until I saw the child step down from the chair. I do not know whether your grown patients could be relieved by a fairy story, but I do think agreeable conversation would divert their minds.

What is that discussion I hear about nerves? And poison? I have at this moment two teeth without nerves. Now of course you think it a great presumption for a woman to speak of such duties of dental lore, so I will only say I consider it most reasonable that my poisoned tooth has always given me trouble, while the one which had the nerve taken out at a clean blow, healed like any other flesh wound, and has never given me a moment's pain.

Of course, in this age of culture, it seems hardly necessary to remind

one of the importance of refined, delicate personal cleanliness. But some young practitioner might not know how pleasant it is to the lady under his care, if he is free at least from the *strong* odor of tobacco.

Another thing: I do not care myself for beautiful furniture in an — office, but I would have the very best instruments. I'd try at least if it were possible to have the best metal, and never break one of those dangerous looking, sharp little creatures in a patient's mouth.

I must not write too much, so I will sum up, hoping I may have given some little hint of good. Of course a man must *know* everything he possibly can about *teeth* first of all, then cultivate a calm, pleasant, *confident* manner. Learn to talk nicely and interest the *victim* undergoing the agony of the Inquisition sometimes. Shall I have the hardihood to say, "don't put poison in his teeth to kill the nerve?" Be refined and clean. Have the best of instruments; and ask the help of Him, the Great Physician, who delighted to soothe every pain of suffering humanity.

This last requisite may seem superfluous to many, but I speak from absolute knowledge. One of the most successful dentists I ever knew always asks God to help and bless him in his work; and many a time have I arisen from his chair with a feeling of thankfulness that I was under the charge of so wise a physician—one not ashamed to acknowledge our Great Helper in all things.—*The Dental Headlight*.

A PECULIAR CASE.

John Thompson was ill with malarial fever, and I prescribed for him Quinia Sulphas. The most peculiar circumstance about this case was as follows: John, as a matter of fact, had to remain in the house, and as he had nothing else to do, he held their ten-months-old baby on his lap a considerable portion of the time. During the four weeks that John was sick, the baby had four teeth peep through the gums. The question at once arose in my mind, how did the quinine act to produce this result? After making a few circus rings around my bump of superlativeness, I evolved the following attenuated explanation. Naturally the child would inhale more or less of John's breath. John was taking the medicine, and of course he had a quinine-laden respiration. The child inhaled this, the quinine-germs came into contact with the gums and produced an evolution of the teeth. Or, to be more explicit, the teeth are composed of a substance that has sufficient density to produce a solution of continuity of a softer structure. The quinine-germs have a peculiar elective affinity for the teeth of children, they being rounded and located *subgumma*. The

quinine-germs, being attracted by the magnetism that flows from the teeth to the food to assist in preparing it for the circulation of the liver, accumulate upon the gums over the tooth. In union there is strength, and as these germs increase in number at this place they form a powerful battery, and draw the tooth to a point, and the point pierces the solution of continuity in the gum. In the solution of this heretofore unexplained mystery we have made a wonderful discovery, and wish to call the attention of the faculty to this seeming *rara avis*.—*Cincinnati Lancet and Clinic*.

THE CHANGE IN THE BOARD OF CENSORS.

At the late annual meeting of the New York State Dental Society occurred a series of events, one at least of which has provoked comment unfavorable to the Society and its membership. The first of these, and perhaps the most important, was the change effected in the Board of Censors by the election of Dr. William Carr to the place so long and ably filled by Dr. Norman W. Kingsley. The proffered reasons for the change are numerous, but, so far as we have been able to ascertain, they are in general and in particular hopelessly involved, inadequate and inconsistent—no two of the members we have seen giving anything like the same reasons, or version of causes, that led to and culminated in this questionable procedure. It was a change without justification so far as the good of the Society is concerned, and had its origin in personal feeling on the part of a few who were determined to get even with an old enemy—use the State Society to further their individual dislikes. It was not because they wanted to see another man in the Board, but rather that they wanted to put Dr. Kingsley out, and when it was learned that he had been telegraphed for and had gone home, then came their opportunity to inflict that stab in the back that resulted in the defeat of this chief of censors, and that prompted him, on receipt of the news, to forward to the President his resignation as a member of the Society—a course he could not well avoid and still maintain his self-respect. To Dr. Carr, who also has “done the State some service,” the announcement of the ballot was a painful surprise, one of the effects of misapprehension based upon misrepresentation of facts. He was in the hands of supposed friends, and was made censor before he could make clear to himself what had happened. Granting that another man was wanted to represent the first district, no better could have been found; nevertheless the results are painful to contemplate—the estrangement of two friends, the loss to the Society of a member whose name alone was “a tower of strength,” the

Society's assurance that long and honorable service is no guarantee that one will not be shelved, even while in the full enjoyment of his well-earned honors, and the publication to the world of a chaotic state of feeling, in what should be the most orderly and harmonious of State organizations.—*Odontographic Journal*.

THE EDITOR of *Items of Interest* reflects on the action of the New York State Dental Society as follows:

Undoubtedly if the dental profession were asked to designate twenty-five of the most skillful, intelligent, and prominent dentists in the world, Dr. Norman W. Kingsley would be one of the twenty-five. His eminence in the profession is so acknowledged, his character so distinctive, and his popularity so universal, his selection would be instinctive.

For such a man not to be a target for the diminutive and the jealous, he must be dead.

The recent action of the New York State Dental Society is another evidence that usefulness, faithfulness, and efficiency, are no safeguards against disgrace from the multitude. It may be we received a wrong version of the society's action. We certainly shall be pleased if this is so.

OXY-PHOSPHATE.

BY E. G. BETTY, D. D. S., CINCINNATI.

Read before the Mad River Valley Dental Society, Dayton, May 19, 1885.

Under the head of "Different Materials for, and Methods of Filling Teeth," it may not be amiss to say a few words about our very good servant, oxy-phosphate of zinc.

This substance, as all are aware, is the result of a chemical union between a base and an acid; but with that part of it we will have nothing to do to-day. I am daily becoming more convinced that this material is of more service than we imagine, in this, that it enables us to ultimately save more "aching" teeth than we could were we still dependent upon oxy-chlorides. It is my custom to fill *all* teeth with it in which the decay has been so extensive as to nearly expose the pulp, those in which it *is* exposed, and dead teeth that have undergone conservative treatment. In case the decay has not exposed the pulp, the debris is thoroughly removed and the cavity filled with a bolus of the phosphate mixed as dry as possible; the surplus is then removed and the filling covered with wax or paraffin,

or it may be given a smooth surface by polishing with heated talc. Should the pulp be exposed, remove the decay, cover the pulp with some kind of varnish, (comp. tinct. of benzoin is most excellent,) flow over it a little of the phosphate prepared very thin; when this has hardened, trim and fill as in the first case. Dead teeth are also to be filled with a stiff bolus. The main point in the use of the phosphate, if you wish to secure full service from it, is to allow the filling to remain as long as it will last, which, in very many cases, is about two years. Should it not remain so long, refill. The object of this is to give the tooth a *long rest*, the longer the better at the end of a year and a half or two years; large operations with cohesive foil will be borne by the tooth so treated with but a slight chance of producing either death of the pulp in the one case or recurrence of periosteal inflammation in the other.

A writer in the *Independent Practitioner* for May, recommends that a small quantity of iodoform be mixed with the thin oxy-phosphate to be flowed on exposed pulps, or immediately over the thin dentine covering one almost exposed. Though I have not tried this, yet I am inclined to think the principle is good.—*Ohio State Journal of Dental Science*.

DENTAL SOCIETY MEETINGS.

SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES.

The Seventeenth Annual Union Convention of the Seventh and Eighth District Dental Societies of the State of New York will be held at "The Genesee," in the City of Buffalo, on Tuesday and Wednesday, October 27th and 28th, 1885.

It is expected that this meeting will be more attractive and profitable than any held for a long time, and the attendance, it is hoped, will be correspondingly increased.

The Business Committee will make every effort to provide for the intellectual pleasure and personal comfort of all who attend.

OHIO STATE DENTAL SOCIETY.

Meets at Chillicothe, October 28th, 29th and 30th. J. R. Callahan, Secretary, Hillsboro, Ohio.

CENTRAL ILLINOIS DENTAL SOCIETY.

The fourth annual meeting of the above-named society will be held in Bloomington, Ill., commencing on the second Tuesday in October, 1885. the session continuing for three days.

C. R. TAYLOR, *Secretary*, Streator, Ill.

AMERICAN DENTAL ASSOCIATION.

At the Minneapolis meeting, August 7th, the following officers were elected: *President*, W. C. Barrett, Buffalo, N. Y.; *Vice-Presidents*, L. C. Ingersoll, Keokuk, Iowa, A. T. Smith, Minneapolis, Minn.; *Secretary*, A. W. Harlan, Chicago, Ills.; *Treasurer*, George W. Keely, Oxford, Ohio.

The selection of the place for the next meeting was left to the Executive Committee.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The National Association of Dental Examiners held its Fourth Session in Curtiss Hall, Minneapolis, Minn., commencing Tuesday, August 4, 1885. President J. Taft in the Chair.

The following State Boards were represented, the four last named being new members: Ohio, by J. Taft and H. A. Smith; Illinois, by George H. Cushing, A. W. Harlan and C. A. Kitchen; Pennsylvania, by E. T. Darby; Maryland, by T. S. Waters; Michigan, by G. R. Thomas and A. T. Metcalf; Louisiana, by Joseph Bauer; Indiana, by S. B. Brown; Iowa, by W. P. Dickinson, J. T. Abbott, J. Hardman, J. F. Sanborn and E. E. Hughes; Dakota, by S. J. Hill; Kansas, by L. C. Wasson and William Shirley; Wisconsin, by Edgar Palmer, C. C. Chittenden, B. G. Marcklein, E. C. French and J. S. Reynolds; Minnesota, by S. T. Clements and G. V. I. Brown.

The following Boards belonging to the Association were not present: Vermont, New Jersey, Georgia, West Virginia, Mississippi, South Carolina and Kentucky.

The following resolutions were adopted:

Resolved, That this Association most earnestly commends the action of the Wisconsin and other State Boards of Dental Examiners, in refusing to accept the diplomas of the so-called Wisconsin Dental College, located at Delavan, on the ground that it is not a reputable school, and recommends to all State Boards to which the diplomas of that institution shall be offered that they likewise refuse them.

Resolved, As the sense of this Association, that persons engaged in the study of dentistry and physicians practicing as such should not be considered eligible to registration as dentists.

Resolved, That this Association recommends that all applicants holding diplomas from the Royal College of Dental Surgeons of Ontario, be required to submit to examination before they are granted license to practice.

WHEREAS, The dental law of the State of Maryland seems to be restrictive in its character; it is the sense of this body that the dental profession of said State of Maryland should, at the next session of its Legislature, seek to cause said dental law to be so amended as to be in harmony with the dental laws of the other States.

Resolved, That the Secretary be instructed to forward a copy of the above resolution to the State Board of Dental Examiners of Maryland.

Resolved, That this Association recommend all State Boards not to grant temporary licenses to first-course students, or any others, unless fully satisfied that such applicants have had at least two years of practical clinical instruction. Such applicants shall pass as well a proper theoretical examination.

The following officers were then elected for the ensuing year: J. Taft, President; T. S. Waters, Vice-President; George H. Cushing, Secretary and Treasurer.

Adjourned to meet at the place to be selected for the next meeting of the American Dental Association, on the Monday preceding the meeting of that body.

THE ARTICLE on "Clasp and Band Matrices," by Dr. J. A. Woodward, that appeared in the July number of THE DENTAL ADVERTISER, should have been credited to the *Dental Cosmos*.

"ANOTHER death caused by artificial teeth lodging in the trachea. Always advise your patients to remove plates before retiring, and during sickness."—*Southern Dental Journal*.

Do not do any such thing, but advise your patients to seek a dentist who has judgment and sense enough to construct a partial denture of such size and adaptability that it will remain in the place it is intended for, with no possibility of its being lodged in the trachea or anywhere else.

AN ASSOCIATED press despatch of August 29th, from Philadelphia, states that a warrant has been issued for the arrest of A. S. Steigerwald, a dentist, in civil suits brought by James N. Price to recover damages for the death of his daughter. Price says that on June 12th his wife took their daughter, who was nearly eight years old, to Steigerwald to have a tooth extracted. Soon after the operation she grew seriously ill, and a week after died. He attributed her death to blood-poisoning caused by the use of dirty instruments by the dentist.

WE HAVE a lady patient thirty-five years of age, who is now cutting her third set of upper incisors. The second set are in good condition, while the third seems to be coming in in finer shape, front of the second set.—*Physicians' and Surgeons' Investigator, Buffalo*.

The Seventh and Eighth District Dental Societies meet in this city in October. Could not the Executive Committee procure the presence of this multidentulous patient, and give the "bright lights" of the society an opportunity to explain the seeming phenomenon?

A WRITER in the *English Mechanic*, in comparing the difference in the power of the eye pieces between celestial and terrestrial telescopes for the same distances, calls attention to the frequently overlooked conditions in the atmosphere. It must be remembered that in observing terrestrial objects one is looking along the densest part of the atmosphere, which is usually very unsteady in the heat of the day. With celestial objects the case is different, because in looking upwards the atmosphere is always getting clearer and less dense. If one considers how clear the air is, even at the top of a mountain only 5,000 feet above sea-level, the enormous difference between looking in a horizontal direction through five miles of dense atmosphere, and looking vertically up through it, will be easily understood.

MORPHINE FOR QUININE AGAIN.—Mr. Chas. G. Am Ende, a well-known Hoboken druggist, in preparing a prescription for Dr. Lowenthal, made the old mistake of putting up (ten-grain) doses of morphine for quinine. The doses were given to Miss Gretchen Holtz and Ella, her sister, daughters of C. F. Holtz, of New York City, at 10 P. M., August 31st. Both ladies have died from the effects of the morphine.

Mr. Am Ende is a member of the New Jersey Pharmaceutical Association, and has been known among his fellow-pharmacists as a skilled chemist and apothecary. The error must be charged to carelessness, and how it could have occurred is a mystery. Some method should be generally adopted whereby a man would be brought to a realizing sense of what he is doing before he can get at the contents of a morphine bottle. Mr. Am Ende, on finding he had committed the error, took a large dose of atrophine, from the effects of which it is thought he might recover.

BONWILL'S METHOD OF FILLING WITH AMALGAM.—Dr. Bonwill's method of filling with amalgam which he related to us, has some features original and worthy of trial. To illustrate, we will select two approximal bicuspid cavities. They are separated, the crown fissure cut out, frail edges trimmed and made firm; the cervical wall, if practicable, cut down to the gum. Amalgam is packed in across from one tooth to the other with a blunt instrument. A piece of bibulous paper is pressed with *great force* on the filling after each piece is introduced; the paper takes up the excess of mercury. The two cavities are filled as if they were one. The articulation is made, and patient dismissed for a day or two, when he returns, and the fillings are separated, and trimmed with chisels (not files) to the proper contour.—*Southern Dental Journal*.

Why not use Dr. Jack's matrices and complete the filling at the first sitting? Why use a surplus of mercury, thereby necessitating bibulous paper or any other absorbent to take up the excess? A recent authority says: "Any dentist, who puts in a plug saturated with uncombined mercury,

had better discontinue using all amalgams until his education becomes more complete." Why not weigh both filings and mercury and obtain the proper proportion of each at once? There would be no guess-work about it then, and no amount of pressure could bring enough mercury to the surface to be absorbed by bibulous paper, or anything else.

THERE are some very illiterate dentists, but it is doubtful if the following letter from a physician could be paralleled. We print it *verbatim et spellatim*, but it is impossible to reproduce the wonderful chirography. Yet the man who is capable of producing such a letter as this is the confidential professional advisor of supposably rational human beings, and is entrusted with the care of human life:

C——— Mo
Mr P——— Dr

July 25 1885

Sir i See a Piec in the Pape about the Dentel asosatin Pleas tell me if a practising physician Can Be Come a member of your order i am a Doctor and Druggist yours as Ever Dr I N——— P o box 66.—*Independent Practitioner*.

WE HAPPENED to be in a drug store a short time since, when a boy came in with a prescription that read thus:

Tinker of Low Bellie.

A quantity of tincture of lobelia filled the bottle and prescription.

SOME TIME since we learned that Mr. R. S. Williams, of New York City, had brought out a new form of soft gold. We ordered it; paid for it; and have used it. Under the above circumstances we consider we have a right to express our opinion, favorable or otherwise.

This gold is called Soft Burnish Gold Cylinders, but is also furnished cohesive. It is put up in sizes ranging from No. $\frac{1}{2}$ to No. 3, in glass vials containing $\frac{1}{16}$ oz. each. We have used the Burnish Gold Cylinders about a month, and without hesitation we know them to be the best working gold that ever came under our instruments. There is a peculiar waxiness in the Burnish Gold that is particularly pleasing to an operator. In cavities difficult of access, and for small cavities, the No. $\frac{1}{2}$ soft, seems the best adapted for the purpose. The No. 1, *cohesive*, can be used directly from the package, without annealing, and is better for contour work or crown cavities than the *soft* cylinders. For finishing fillings, however, we use the Standard Electric Gold, prepared by the same manufacturer.

We do not write the above to "boom" Williams' gold, but having given it a thorough test in everyday practice, and found it so uniformly pleasing, we wish others to know of this remarkably fine preparation.

MISCELLANEOUS NOTES.

Dr. Koch, who is one of the representatives of Germany at the International Sanitary Conference, recently attended a meeting of specialists on the cholera question, and reiterated, as the general results of his researches, that the comma bacillus manifests itself nowhere but in cholera cases, and is never absent from them.

A memorial statue of Charles Darwin, designed by Mr. Boehm, R. A., was unveiled in June last, by Prof. Huxley, in the great hall of the Natural History Museum, London, in the presence of the Prince of Wales and a large assembly, including many of the most prominent scientific men of the day. The Prince of Wales received the statue on behalf of the trustees of the museum.

Cholera inoculations in Spain are said to be a failure. It is suggested that Ferran is inoculating with septicæmia merely. The *Philadelphia Medical Times* says: "The fact that cholera is neither contagious nor self-protective, and that its pathogenic cause resides in the intestine and not in the blood, so far as has been ascertained, would seem effectually to forbid any hope that it is a disease from which immunity can be obtained by inoculation."

Menthol as a Substitute for Cocaine.—Dr. Albert Rosenberg, of Berlin, has found in menthol (*Berl. Klin. Woch.* No. 28), in ethereal or alcoholic solution (20 to 30 per cent.), a useful substitute for the expensive cocaine, in cases where local anæsthesia of mucuous membrane—e. g., of nose, pharynx and larynx—is required. The effect of menthol is not so lasting as that of cocaine, but it appears to have somewhat of a cumulative action; for, when repeated, even after a long interval, the latter application produced a longer period of anæsthesia than the earlier.

At a recent meeting of the Edinburgh Medico-Chirurgical Society, Dr. Foulis gave a demonstration of the circulation in the web of a frog's foot, and of some botanical test objects by means of the oxyhydrogen light. The light, transmitted through a powerful condenser, passed through an ordinary microscope lens, and was thrown upon a large plate of ground glass at a distance of about twenty-five feet. The image of the object demonstrated could be focused on this plate with great exactitude, the definition even with high powers being excellent, and the general effect strikingly satisfactory.

I caught two lizzards, cut their tails off, and sewed the two tail stumps together; I glued the lizzards immovable to the floor, so that the wounds would remain quiet. The wounds healed, and the two lizzards grew together as completely as the Siamese Twins—thus making it possible to unite or combine the *Talliacotion* and *Transfusion* operations. I think that in certain cases these two operations may be combined with great benefit to humanity. They could be used by growing an animal on to a human subject, or by growing two human beings together.—*John M. White, M. D., in St. Louis Medical Journal.*

On March 23, 1885, I was called to Minnie C——, aged 19, a young lady who had a molar tooth of the upper jaw extracted on February 21st, under the influence of nitrous oxide gas. The extraction was rapid and the parts much torn, with injury of the alveolar process; she suffered for three days, the pain becoming all the time more severe. The family had employed all the domestic remedies, as laudanum, etc. I at once painted the gum on each side, with the oleate of cocaine, and then saturated a plug of cotton wool with the oleate and pressed it well into the cavity. In five minutes she informed me that she was entirely relieved of the pain, and she continued free.—*Laurence Turnbull, M. D.*

The size of the Atlantic waves has been carefully measured for the Washington Hydrographic Bureau. In height the waves usually average about 30 feet, but in rough weather they attain from 40 to 48 feet. During storms they are often from 500 to 600 feet long, and last ten or eleven seconds, while the longest yet known measured half a mile, and did not spend itself for twenty-three seconds.

Effect of Acid upon Iron.—The effect produced upon the appearance of iron by the acids employed in the process of etching, presents some peculiar characteristics, depending upon the kind of iron treated. Soft or sinewy wrought iron of excellent quality is attacked so equally by the acid, and so little acid is separated, even after several hours' action, that the surface remains bright and smooth; fine-grained iron acts the same, the surface being still smoother, but a little darker; coarse-grained and cold short iron is attacked much more violently by acid than that just mentioned—in ten minutes, especially with cold, short iron, the surface is black. After thirty minutes a black gloss can be washed off, and the surface will remain black in spite of repeated washings, and exhibit numerous little moles. Certain parts of the iron are usually penetrated deeper, while others, although black and porous, offer more resistance. By allowing the acid to act for an hour or so, and then washing, drying, and polishing with a file, a distance picture is obtained. As is known, malleable cast-iron rusts more easily than wrought iron, and it is an interesting fact that the action of the acids is also violent, the surface being attacked very intensely. Grey pig-iron acts like steel, and the etched surfaces have a uniform grey color.—*English Mechanic*.

BOOK NOTICES.

COOKING AND CASTLE BUILDING, by Mrs. Emma P. Ewing, Dean of School of Domestic Economy of Iowa Agricultural College, Ames, Iowa. Cloth, 216 pages, \$1.00.

Also by same author:

COOKERY MANUALS. No. 1.—Soup and Soup-Making; No. 2.—Bread and Bread-Making; No. 3.—Salad and Salad-Making; No. 4.—Vegetables and Vegetable Cooking. Paper, 25 cents each.

Although a little out of our province, we are nevertheless much interested in the contents of the above books. Mrs. Ewing has for several years occupied a prominent and enviable position as a lecturer on domestic cookery and economy, and is now installed as Dean of the School of Domestic Economy in the Iowa Agricultural College.

Cooking and Castle Building is written in the form of a story, interwoven with a large number of useful common-sense recipes for every-day cooking. It is a readable and instructive book.

THE DANCING MANIA. By J. F. C. Hecker, M. D. No. 72 of the "Humboldt Library of Science." J. Fitzgerald, Publisher, 393 Pearl Street, New York. Price, 15 cents, post free.

The Dancing Mania of the Middle Ages is one of the most curious episodes in the history of mankind, whole villages, towns and communities being seized with an irresistible impulse to dance and leap about, and to wander up and down the whole of Europe, communicating their frenzy to the people wherever they wandered. The symptoms of this strange disorder, and the mad antics of its victims, are vividly portrayed by the author by contemporary annals.

PREHISTORIC ARCHAEOLOGY. By Daniel Wilson, Ph. D., with an appendix on Anthropology, by E. B. Taylor, F. R. S. Price, 15 cents, post free. J. Fitzgerald, Publisher, 393 Pearl Street, New York.

These valuable treatises, by two of the most eminent English scientists, are comprised in No. 71 of the "Humboldt Library of Science," the only publication in the world which presents the best scientific works of the day in cheap form. The work is clearly printed on good paper, in convenient octavo size. Address as above.

AMERICAN MEDICAL DIGEST. A digest of current medical literature, published in monthly parts. Editor, John C. Lester, A. M., M. D.; assisted by Alexander J. C. Skene, M. D., Arthur Mathewson, M. D., George Henry Fox, M. D., Charles Jewett, M. D., John C. Shaw, M. D., F. R. Sturgis, M. D. New York: H. Campbell & Co., Publishers, 142 Nassau Street.

This is a finely printed double-column monthly, filled with judiciously selected articles from standard sources. The August number contains twenty-nine articles on medicine, twenty-two on surgery, and twenty-two on diseases of women and children and obstetrics.

BOOKS RECEIVED.

CHARGE TO THE GRADUATES, delivered at the twenty-ninth annual commencement of the Pennsylvania College of Dental Surgery, by Henry Leffmann, M. D., D. D. S., Professor of Chemistry and Metallurgy.

THE WOMAN'S MAGAZINE. Esther T. Housh, Editor. Brattleboro, Vt. \$1.00 a year.

REPORT OF PROCEEDINGS OF THE TENNESSEE STATE BOARD OF HEALTH, quarterly meeting, Nashville, July 7th, 1885.

THE PEOPLE'S HEALTH JOURNAL OF CHICAGO. An independent, popular monthly magazine, devoted to Hygiene, Sanitary Science and Preventive Medicine. L. D. Rogers, A. M., M. D., and S. Ida Wright Rogers, M. D., Editors, 441 Dearborn Ave., Chicago. Published the first of each month by The People's Health Journal Co., Chicago. \$1.00 a year, in advance. 10 cents a copy.

THE BOOK-WORM. Containing entertaining selections from popular authors. New York: John B. Alden, 393 Pearl Street.

THE LIBRARY MAGAZINE. Monthly. New York: John B. Alden, 393 Pearl Street. Price, \$1.50 a year.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

320,461—June 23, 1885.—BLOW-PIPE.—George D. Cowen, Taunton, Mass.

320,806—June 23, 1885.—DENTAL CHAIR.—M. Lukens Long, Philadelphia, Pa.

320,844—June 23, 1885.—ADJUSTABLE CHAIR.—William E. Burk, Philadelphia, Pa.

320,980—June 30, 1885.—METHOD OF PREPARING RUBBER PLATES FOR THE VULCANIZER.—Joseph Spyer, Santa Fé, New Mexico.

321,265—June 30, 1885.—DENTAL TOOL HOLDER.—Luther T. White, Cortland, N. Y.

- 321,457—July 7, 1885.—DENTAL ARTICULATOR.—George E. Smith, Windsor, N. Y.
 321,814—July 7, 1885.—DENTAL INSTRUMENT.—John Hood and Stephen H. Reynolds, Boston, Mass.
 321,847—July 7, 1885.—DENTAL PLATE.—William H. Peirce and Joseph H. Russell, Centreville, Mich.
 322,265—July 14, 1885.—DENTAL INSTRUMENT.—Robert B. Donaldson, Washington, D. C.
 323,305—July 28, 1885.—TOOTH BRUSH.—Warren R. Evans, Portland, Me.
 323,306—July 28, 1885.—ARTIFICIAL TEETH.—Warren R. Evans, Portland, Me.
 323,573—Aug. 4, 1885.—DENTAL LIP HOLDER.—Amaziah Garner, Lynchburg, Ohio.
 323,627—Aug. 4, 1885.—DENTAL JAW BRACE.—Willis J. Bickford, North Attleborough, Mass.
 325,560—Sept. 1, 1885.—DENTAL BRACKET CASE.—Joshua H. Morrison, Connersville, Ind.
 325,626—Sept. 1, 1885.—ARTIFICIAL TOOTH.—Thomas S. Phillips, Buffalo, N. Y.

Second-Hand and Shop-Worn Goods FOR SALE CHEAP.

MISCELLANEOUS.

- Wood Polishing Points. Manufactured by the patentee, Dr. Southworth; 100 in a box. Price, \$1.25; will sell for 50 cents per box.
 One Lot Jarvis Separators. Will sell for 50 cents each.
 One Lot Johnston Bros. Reflectors, to attach to Rubber Dam Clamps, throwing light into cavities. List price, \$2.75; sell for \$1.50 each.
 One Pair Plate Benders, as shown on page 290 S. S. White's Catalogue. \$1.50.
 One Pair Pin Heading Forceps. \$1.50.
 One Lot Ross Polishing Powder, for polishing Rubber Plates. Put up in 1-lb. boxes. Per box, 15 cents.
 One Lot Pin Racks, for Snow & Lewis' Automatic Points. Curved, to hold 18 or 36 points, and square, to hold 24 points. Each, 50 cents.
 One Blake's Duct Compressor. \$1.50.
 Aluminum Solder, per ½ ounce. 50 cents.
 One Lot Bur Gauges, nicely Nickel-plated. Each, 25 cents.
 Plate Tooth Holder, to hold Teeth while grinding. Each, 15 cents.
 Blodgett's Tooth Wash. Per dozen, 50 cents.
 One Brass-Bound Mahogany Case, 16½ x 11 x 4¼ inches, as shown on page 212 S. S. White's Catalogue, without trays. Cost, \$20.00; will sell for \$15.00.
 One Spencer & Crocker's Bracket, Japanned. Complete with table. Shop-worn. \$9.00.
 One Morrison Bracket, Nickel-plated. In good condition, except table. Cost \$25.00. will sell for \$12.00.
 One Archer Chair, with separate Foot-stool, Crane and Table, Spittoon attached, and Codman & Shurtleff Saliva Ejector, all for \$25.00. Chair needs re-upholstering to put it in perfect order.

- One Archer Chair, with Foot-stool attached, Crane, Table and Spittoon. Needs re-covering. \$30.00.
- One Snowden & Cowman Chair, Iron Base. Spittoon and Bracket attached (for description see *American Journal of Dental Science*), in good order. \$45.00.
- One S. S. White Electric Mouth Lamp, complete, with battery, in perfect working order. \$20.00.
- One Haid Electric Mouth Lamp, complete, with battery, in perfect order. \$12.00.
- One Archer Chair, in fair order. \$15.00.

INSTRUMENTS.

- One Lot Teeth Forceps, oval-jointed, of different makes, and a variety of shapes, all new. Per pair, \$1.50.
- One Pair Wedge Cutters. \$1.50.
- One Pair Plugging Forceps. \$1.50.
- One Pair Fulcrum Forceps. \$1.50.
- One Engine Porte Polisher and File Carrier, in good order. \$5.00.
- One Job Lot Steel-Handled Pluggers and Scalers, various makes, nearly all the different shapes used. Per doz., \$3.00.
- These instruments are of just as good material and temper as any now made, but the handles are of different shapes and sizes.
- One Shell-Handle Single Blade Pocket Lancet. 50 cents.

DENTAL BOOKS.

- One Cole's Deformities of the Mouth. Second edition. \$1.00.
- One Leber & Rottenstein's Dental Caries. 45 cents.
- One Tyson's Cell Doctrine. \$1.50.
- One Huxley Elementary Lessons in Physiology. \$1.00.

MACHINERY.

- One Glycerine or Hot-Air Celluloid Apparatus. Cost, new, \$8.00; will sell for \$3.00. This will make an excellent flask press, having an iron pot in which the flask can be simultaneously boiled and pressed.
- Two No. 2 Whitney Vulcanizer, without heating apparatus, or flasks. Each, \$7.00.
- These Vulcanizers are some that have been repaired and not called for by the owners. They are all in working order.
- One Hopkins Gas Regulator, in good working order. \$10.00.
- One Forty-Gallon Gasometer. \$10.00.
- One Hand Lathe. \$2.00.
- One Gas Apparatus, consisting of 100 gallon Cylinder, S. S. White Inhaler, Gas-bag and Tripod. All new, except Tripod. \$29.00.
- One S. S. W. Dental Engine, with Johnston's Cone Journal Hand-piece, in perfect working order. In use only six months. \$35.00.
- One Cogswell & Gee Gasometer, Justi Inhaler and Four feet Covered Inhaling Tubing, all for \$16.00. In good condition.
- One Set Bickford Mouth Props, in good order. \$2.00.

REDUCTION IN PRICE.

FLETCHER'S GUTTA PERCHA HYDRAULIC CEMENT.

PRICE PER CAKE, \$1.00

R. S. WILLIAMS,

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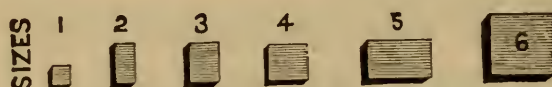
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Over one hundred and fifty varieties kept in stock, each differing in quality, size or style.

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ARE THE BEST.

 Send for Price List and Descriptive Circular.

R. S. WILLIAMS,

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FOR SALE BY BUFFALO DENTAL MANUF'G CO.

New · Specialties · in · Gold FOR FILLING.

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SOFT · BURNISH · GOLD · CYLINDERS.



Sizes, $\frac{1}{2}$, 1, 2, 3, and assorted.

These cylinders are made with particular reference to the new system of packing gold with engine burnishers.

They also have excellent qualities for use with Mallet or Hand Pluggers.

A prominent New York operator says: "As a soft gold they surpass anything I ever used."

· COHESIVE · BURNISH · GOLD · CYLINDERS ·



Sizes, $\frac{1}{2}$, 1, 2, 3, and assorted.

Are similar to the above, but are *fully Cohesive*. They also have the quality of toughness, so the *plugger point carries the gold before it* instead of cutting through. It is claimed for them that they possess, in the highest degree so far known, the

MAXIMUM OF COHESION WITH THE . . . MAXIMUM OF SOFTNESS AND TOUGHNESS

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It is believed these two varieties of Burnish Gold Cylinders possess such desirable and hitherto unobtained working properties, that they are well worth a trial by all first-class operators.

\$4.50 per $\frac{1}{8}$ oz.—\$17.50 per $\frac{1}{2}$ oz.

For Sale by
B. D. M. CO.

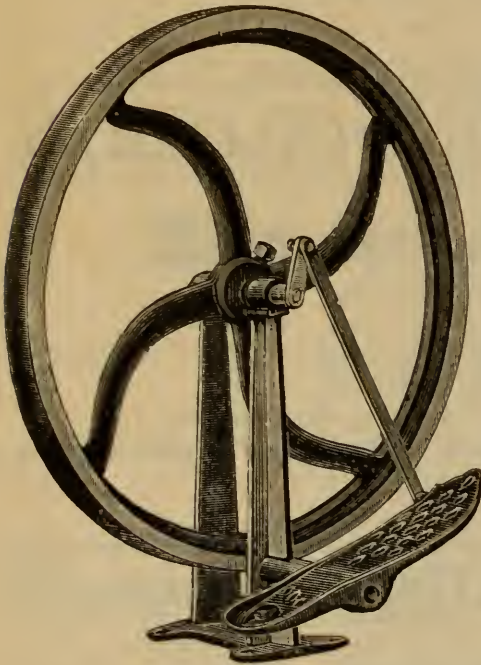
R. S. WILLIAMS,
No. 115 WEST 42d STREET,

NEW YORK
CITY.

Driving Wheels for Lathes.

We take pleasure in illustrating the driving wheels here shown, believing that they will be found desirable and convenient for the use of the dentist, as well as moderate in price.

Every wheel is warranted well made and true, and their diameter and weight are sufficient to give the required speed and steadiness of motion.



DRIVING WHEEL No. 1.

—This is a cast iron wheel, eighteen inches in diameter, weighing 20 lbs. Total weight, as illustrated, 28 lbs. The rim is grooved for use with a round belt or cord. The standard is a single casting which may be either fastened to the floor or suspended from the lower side of the bench; in which case it can be easily adapted for operating a lathe set with the spindle pointing towards the operator. In this case the treadle may be made of a board hinged to the floor, allowing the movement of the whole leg, and giving more power than the rocking treadle shown in the cut, or the rocking treadle may be easily adapted, if it is preferred.

PRICE.—Driving Wheel No. 1, \$4.00

DRIVING WHEEL No. 2.—

This is a heavy cast iron rim with arms of $\frac{3}{8}$ round steel. The weight is thus thrown principally into the rim of the wheel, making it a very effective one for the weight. The diameter is 20 inches, weight 25 lbs.; total weight, 33 lbs. The rim of the wheel is grooved for

use with a round belt or cord. The standard is a single casting, which may be either fastened to the floor or suspended from the bench, in the same manner as the No. 1 wheel.

PRICE.—Driving Wheel No. 2, \$6.00

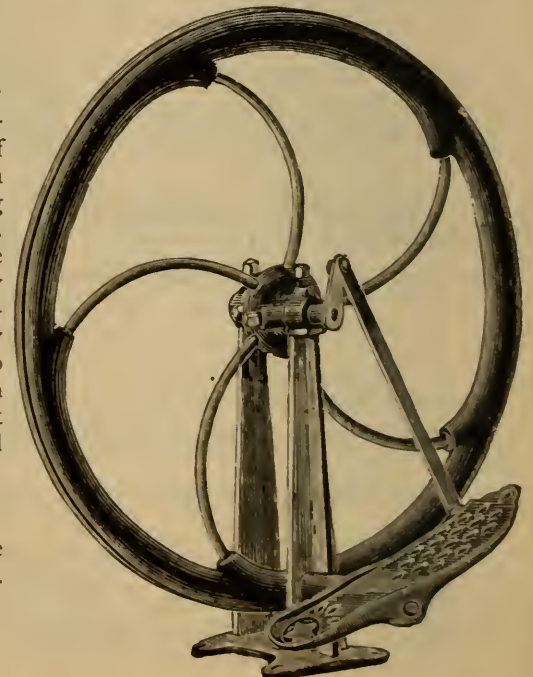
BROWN'S LATHE BATH.

—This entirely new device is believed to be the most perfect of its kind; the cup contains a wick, which is applied to the surface of the grinding wheel, keeping it wet without flooding it. The cup revolves on the pedestal and the latter revolves and slides on the screw which enters the bench, thus making it perfectly adjustable. It can be fitted to any lathe by cutting the rod to the proper length. When used for the first time, that part of the wick contained in the tube should be wet.



PRICE.

Brown's Lathe Bath, . 50 cts.



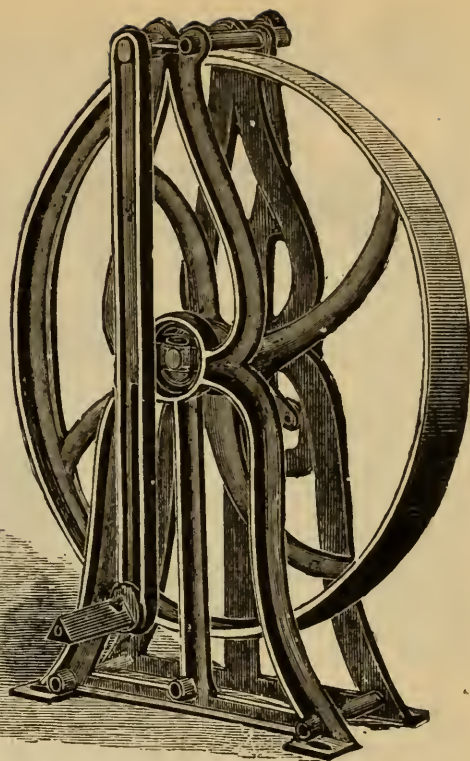
DRIVING WHEEL

No. 5.

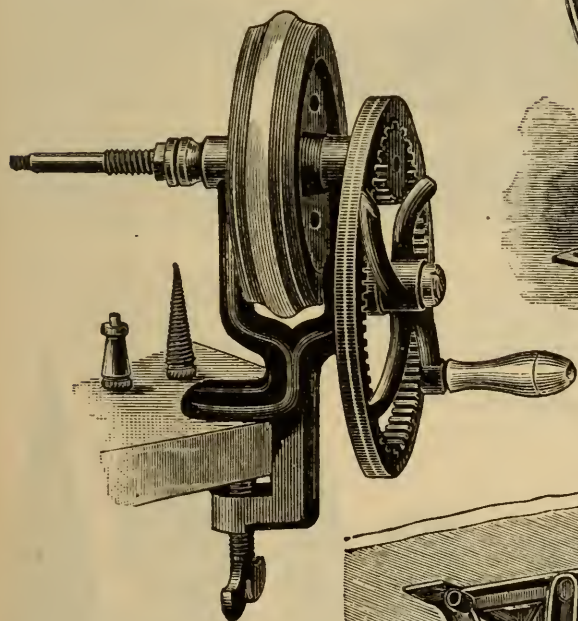
This wheel may be used either hanging under bench or standing on the floor, the frame being provided with upper and lower bearings for the rock-shaft. It is made with SWING TREADLE or with HEEL AND TOE TREADLES as desired; with rim flat, round or grooved. Diameter of wheel, 20 inches; weight, 25 lbs.; total weight, 50 lbs.

PRICE.

Driving Wheel No. 5, \$9.00



No. 5. Swing Treadle. Standing.

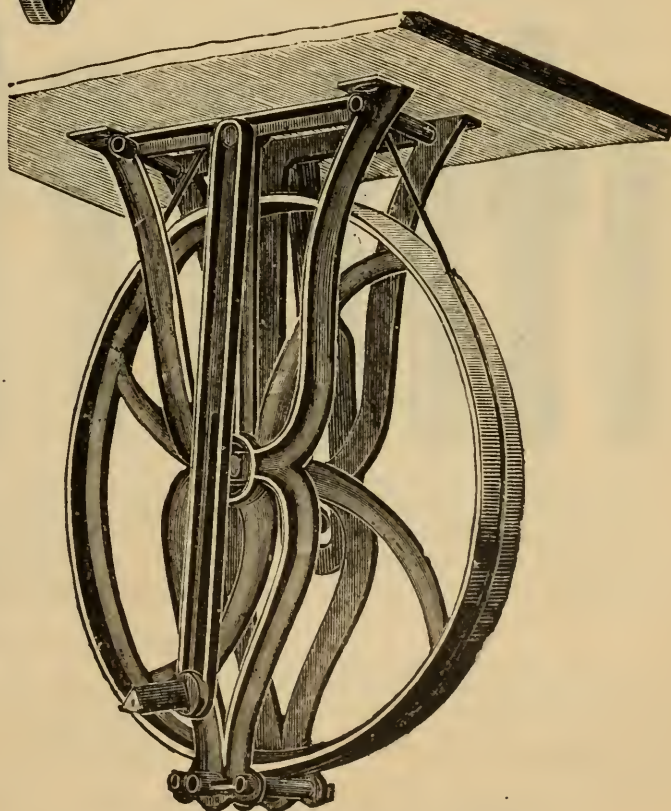


SKELETON HAND LATHE.

A very effective and desirable form of cheap grinding apparatus. The spindle carries a heavy fly-wheel, which gives the apparatus strength and steadiness of motion. The price includes one chuck for brushes, and one for a small corundum wheel, which screw on the end of the spindle. A large corundum wheel is carried between the parting nuts on the spindle.

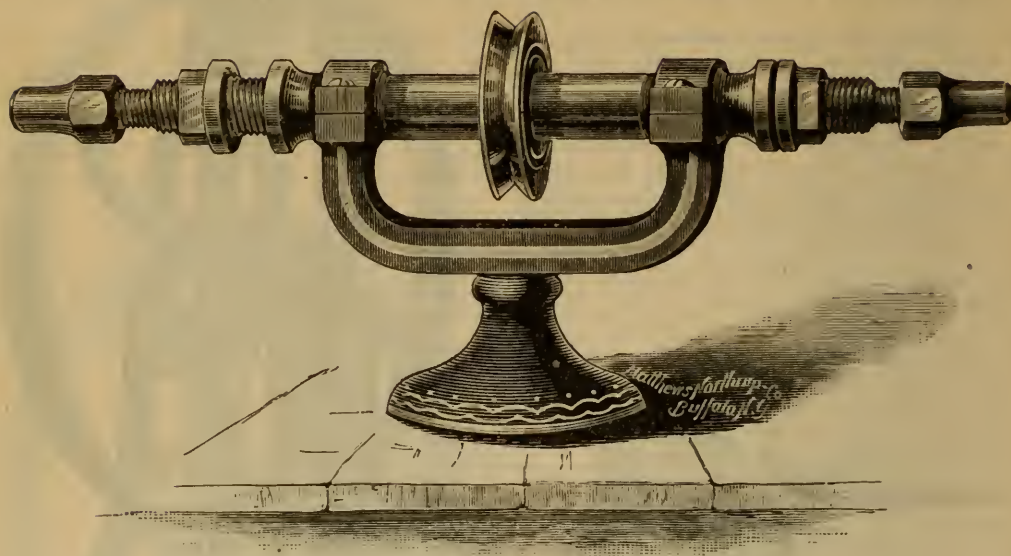
PRICES.

Skeleton Lathe, . . . \$4.50
Extra Chucks,25



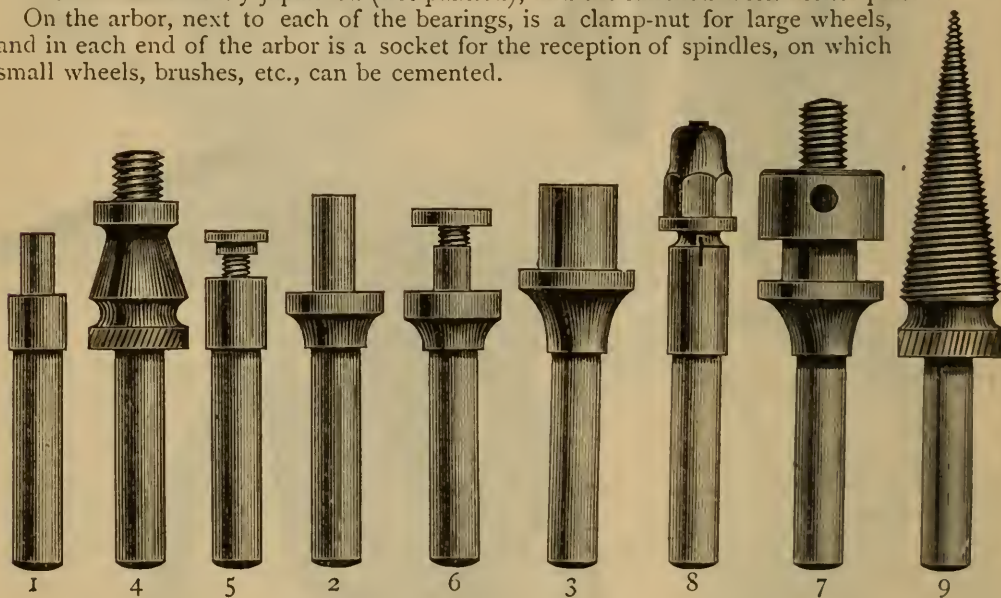
No. 5. Swing Treadle. Hanging.

B. D. M. Co.'s LATHE HEAD.



This head consists of a cast-iron Standard and a cast-steel arbor, highly finished, forming one of the best combinations of wearing surfaces for light work that is known. The Standard is neatly japanned (not painted), and the finished work nickel-plated.

On the arbor, next to each of the bearings, is a clamp-nut for large wheels, and in each end of the arbor is a socket for the reception of spindles, on which small wheels, brushes, etc., can be cemented.



The chucks are designed to meet all requirements of the office and laboratory. Nos. 1, 2, 3 are for shellacing corundum wheels on. No. 4 will take the nut corundum wheel. Nos. 5, 6, 7 are screw-chucks for corundum wheels, etc., and No. 8 will carry all the engine tools. No. 9 is a screw-cone for carrying brush wheels on.

PRICES.

Head complete, with nine Chucks, \$11.00

PARTS SEPARATELY.

Head without Chucks,	\$8.00	Chucks No. 6,	each, \$0.45
Chucks No. 1,	each, .15	" " 7,	" .60
" " 2, 4 and 9,	" .25	" " 8,	" 1.00
" " 3 and 5,	" .30		



FOR convenience in handling and incidentally to save time to purchasers, our Standard Gold Solders are now put up in envelopes (see design above) containing respectively one and two dwts., full weight. The advantages of this "new departure" will be at once apparent. We also sell our Gold Solders in the usual way.

PRICES:-

Gold Solder, 14-k.,	per dwt. \$.75
" " 18-k.,	" .90
" " 20-k.,	" 1.00

GOLD · PLATE, · WIRE, · ETC.

We have had much satisfaction in the reports from users of our improved Gold Plate and Wire, which were first announced in the DENTAL COSMOS for April, 1885.

PRICES:-

Standard Gold Plate, 18-k.,	per dwt., \$.90
" " 20-k.,	" 1.00
" " 22-k.,	" 1.10
" " 24-k., (Pure Gold,)	" 1.15
" " Clasp, 18-k.,	" .90
" " Wire, 18-k., Round and Half-round,	" 1.00
" " 20-k., Round, Half-round, and Triangular,	" 1.10
" " Clasp Wire,	" 1.00
Crown-Metal (one side Pure Soft Platinum, the other Pure Gold—equal parts,) decidedly the Best Combination for Metal Crowns ever made,	" 1.00

We can also supply a Crown-Metal of Gold and Iridio-Platinum, a harder and stiffer composition, at same price as the Gold and Platinum preparation.

Platinum Plate, Pure, Very Soft,	} Prices Fluctuate.
" " Wire,	
Iridio-Platinum Plate, Hard and Elastic,	
" " Wire	

Also, a full line of Silver Plate, Wire, Solder, etc.

The improved methods by which our Gold Solders and Gold Plate, Wire, etc., are made, and the care exercised to produce them of a standard quality, enable us to assure purchasers of their entire reliability and uniformity. They are not equaled by any other manufacture.

THE S. S. WHITE DENTAL MANUFACTURING CO.,

Philadelphia. New York. Boston. Chicago. Brooklyn.

Owing to the Constantly Increasing Demand

FOR



AND WITH

NEW FACILITIES FOR MANUFACTURING

I am enabled to announce the following

GREAT · REDUCTION

In Prices, which hereafter will be

4 cts. per Gallon in 100 Gallon Cylinders.

3½ “ “ 500 “ “

COMPLETE GAS APPARATUS OUTFITS.

	<i>Former Prices.</i>		<i>Reduced to</i>
Surgeon's Case, with 4½ gal. gas bag and 100 gal. Cylinder filled,	\$42.00	\$40.00	\$37.75
Surgeon's Case, with 7 gal. gas bag and 100 gal. Cylinder filled,	44.00	42.00	39.00
Univers. Tripod, with 4½ gal. gas bag and 100 gal. Cylinder filled,	36.00	34.00	32.75
Univers. Tripod, with 7 gal. gas bag and 100 gal. Cylinder filled,	38.00	36.00	34.50

SEPARATE PARTS.

Cylinder containing 100 gal. gas, . . .	\$16.00	\$15.00	\$14.00
“ “ 500 “ . . .	44.00	42.00	39.50
Re-filling 100 gal. Cylinder,	6.00	5.00	4.00
“ 500 “ per gal. 3½c. . . .	22.50	20.00	17.50

I continue to REFILL Cylinders of ALL
MAKES, as well as to GUARANTEE the KEY-
STONE VALVE, and the WEIGHTS of the
Cylinders as marked ON THE LABELS.

Dentists having EXPERIENCED TROUBLE
and LOSS OF GAS through FAULTY valves,
will find it to their ADVANTAGE to have them
REPLACED by the KEYSTONE valve at a
nominal cost.

PHILADELPHIA, PA., April 1, 1885.

H. D. JUSTI,

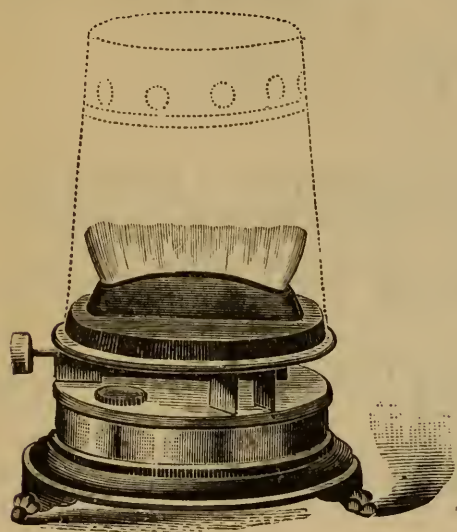
———— DENTAL DEPOT, —————

No. 516 Arch St., - Philadelphia, Pa.

BRANCH: 66 E. MADISON ST., CHICAGO, ILL.

Sole Agent for the Keystone Gas Regenerating Co.

B. D. M. CO.'S
Kerosene Stove
 FOR
VULCANIZERS.



A special pattern, with a 4-inch wick. This stove is now furnished with all of our vulcanizers, when ordered "for kerosene," without advance in price.

In ordering, state whether for No. 1, No. 2, or No. 3 Vulcanizer.

PRICE, including jacket, . . . \$1.50

AMALGAMS.

	PER OZ.
Fletcher's Platinum and Gold, . . .	\$4.80
Fletcher's Extra Plastic,	5.00
Blackwood's Amalgam,	4.00
King's Amalgam,	3.00
Buffalo Amalgam,	2.00
Chicago G. & P. Amalgam,	4.00
Oliver's Amalgam,	3.00
Holmes' Amalgam,	4.00
Lawrence's Amalgam,	3.00
Sterling Amalgam,	3.00
Par Excellence Alloy,	3.00
Globe G. & P. Alloy,	3.00

OFFICE PREPARATIONS.

	PER BOTTLE.
Liquid Silex,	\$0.25
Ethereal Varnish, . . . . .	.35
Sandarac Varnish, . . . . .	.25
Wood Creosote, . . . . .	.30
Von Bonhorst's Anaesthetic,	1.50
Listerine,	1.00
Phenol Sodique, . . . . .	.50
Carbolized Resin, . . . . .	.25
Copal Ether Varnish, . . . . .	.25

FLETCHER'S
Glass Mortars & Pestles
 FOR
MIXING AMALGAMS.

These mortars are $1\frac{3}{4}$ inches outside diameter, $1\frac{1}{2}$ inches high, ground inside. Pestles for firm holding, $4\frac{1}{2}$ inches long.

PRICE, each, 50 cents.

NOTICE.
PRECIOUS METALS.

The undersigned, manufacturers of gold foils, feel impelled to call attention to the rule requiring cash payment for all precious metals and preparations thereof. The small margin of profit on these goods and the fact that every article entering into their production must be paid for by us in cash before they are offered for sale, render this rule necessary.

The S. S. White Dental Mfg. Co.
James H. Ashmead & Son.
J. M. Ney & Co.
Hood & Reynolds.
John B. Dunlevy.
Est. of W. Vallean, Jr.
Chicago Dental Mfg. Co.
Morgan, Hastings & Co.
Charles Abbey & Sons.
E. Kearsing.

JUNE 18, 1885.

DENTAL RUBBER.

	PER LB.
English Pink,	\$7.00
English Black,	3.50
Fifteen Minute,	3.00
Bowspring,	2.75
Holdfast,	2.75
Whalebone,	3.00
Akron,	3.00
Samson,	2.75
Amalgamated,	4.00
Buffalo Red, Nos. 1 and 2,	2.25
Buffalo Black,	2.25

SEND FOR
NEW CATALOGUE
 OF
Dental Specialties.
 BUFFALO
 DENTAL MANUFACTURING
 COMPANY.

DRESSING
 FOR
EXPOSED PULP
 AND
Sensitive Teeth,

PREPARED BY
 DR. A. TERRY, . . NORWALK, OHIO.

PRICE PER BOTTLE, \$1.50.

For Sale by BUFFALO DENTAL MFG. CO.

REPAIRING.

Prices of Parts and Repairs for
 Automatic Pluggers.

New Spring Catch,	\$0.75
New Hammer Catch, . . . . .	.30
New Ring, . . . . .	.50
New Socket,	2.00
New Sleeve,	2.00
New Case,	4.00
New Hammer Spring, . . . . .	.25
New Trip, or Inclined Plane, . . . . .	.50
New Hammer, . . . . .	.50
New Tension Knob,	1.00
New Follower, . . . . .	.25
New Collar, . . . . .	.25
Nickel Plating,	1.00

Reduction in Price.

**PRACTICAL DENTAL
 METALLURGY.**

By THOS. FLETCHER, F. C. S., Warrington, Eng.

A concise treatise on the Physical Properties of
 Metals and Alloys of actual or possible
 use to Dentists.

PRICE, \$1.75

FOR SALE BY

Buffalo Dental Manufacturing Company.

PHÉNOL SODIQUE

Hemostatic, Antiseptic and
 Disinfectant.

Highly recommended as an astringent and styptic
 application to check excessive bleeding after
 extraction, and to prevent subsequent
 soreness of the gums.

PRICE:

Per bottle, \$0.50
 Per dozen, 4.00

IRON

Bracket Drawers

A VERY CONVENIENT DEVICE
 WHEN A RECEPTACLE FOR
 SMALL ARTICLES IS WANTED
 UNDER A BRACKET, TABLE,
 SHELF OR BENCH.

They turn out on a center. Size, 4 x 3½ x 1 inches.
 Original Price, 60 cts. Price now, 25 cts.

BUFFALO DENTAL MFG. CO.

SAMSON RUBBER

MANUFACTURED BY

EUGENE DOHERTY,

No. 444 First Street, Brooklyn, E. D., New York.

WARRANTED TO BE

THE STRONGEST AND MOST UNIFORM RUBBER MANUFACTURED.

It is the TOUGHEST and Most Durable Rubber Made. Vulcanizes same as Ordinary Rubber.

SAMSON RUBBER.



MANUFACTURER OF ALL KINDS OF

DENTAL RUBBERS AND GUTTA PERCHAS.

PRICE LIST OF DENTAL RUBBERS AND GUTTA PERCHAS.

No. 1 Red Rubber, per lb., \$2.25	No. 1 Red Weighted Rubber, per lb., \$4.00
No. 2 Red Rubber, per lb., 2.25	No. 2 Red Weighted Rubber, per lb., 4.00
Samson Rubber, per lb., 2.75	Black Weighted or Amalgamated
Black Rubber, per lb., 2.25	Rubber, per lb., 4.00
Flexible or Palate Rubber, per lb., . 2.75	Weighted Gutta Percha, per lb., . . 4.00
Gutta Percha for Base Plates, per lb., 2.25	Adamantine Filling or Stopping, per
Vulcanite Gutta Percha, per lb., . . 3.50	oz., 4.00

NOTE.—The above Rubbers and Gutta Perchas will be furnished in pound or half-pound packages to any Dentists in the country on receipt of price, and stating that they cannot get them at the Dental Depots in or near their place of business. Circulars giving full instructions how to use all of my Rubbers and Gutta Perchas, will be found in each box or package with the article ordered.

EUGENE DOHERTY, 444 First Street, Brooklyn, E. D., New York.

[ja84-1y.]

FOR SALE BY BUFFALO DENTAL MANUFACTURING CO.

CAULK'S FILLING MATERIALS.

(ESTABLISHED 1877.)

DIAMOND CEMENT

THIS COMPOUND NOW STANDS WITHOUT A RIVAL. From Five to Seven Years' Test by leading Dentists throughout the World has proved it to be all that has been claimed for it.

FOR MOUNTING ARTIFICIAL CROWNS—it has been highly recommended, is non-irritating, non-conducting, in harmony with tooth structure, has no shrinkage or expansion, and excellent for lining cavities and capping pulps.

IT WILL HARDEN IN WATER OR SALIVA. It does not deteriorate with age. We have some over THREE YEARS OLD, and it works as nicely as when first made. We have increased the quantity of liquid in both packages, and all bottles are lettered with "Caulk's Diamond Cement."

PRICE—(One Color,) Gray, Yellow, Medium or Light, Per Package, \$1.00
(Two Colors,) Gray and Yellow, (reduced to) " " 1.50
(Four Colors,) Gray, Yellow, Medium and Light, " " 2.00

The Universal Verdict is that CAULK'S DIAMOND CEMENT IS THE BEST. A Fair Trial will convince you.

CAULK'S PAR-EXCELLENCE ALLOY.

THIS GOLD AND PLATINA ALLOY IS MANUFACTURED on a NEW PRINCIPLE.

NONE BETTER MADE. SAVES TEETH WHERE OTHERS FAIL. With one exception, we were the first to manufacture an Amalgam containing Gold and Platina, although we did not call it such, simply our trade name **Par-Excellence Alloy**, which fully expresses the superiority of this combination of metals over others.

It is the result of a long series of experiments, and has been in constant use for several years. By our new method of manufacture there is NO GUESSWORK, the molecular change is controlled, making each and every ingot always and absolutely alike in its properties.

PRICE, in 1-3, 1-2 and 1 ounce packages, per ounce, \$3.00; 2 ozs., \$5.00.

CAULK'S WHITE ALLOY

HAS BEEN GREATLY IMPROVED, COSTING MORE TO PRODUCE IT. THERE IS NOTHING EQUAL OR SUPERIOR TO IT.

Is of a peculiar grayish-white color. When amalgamated in the hand works with a soft and velvety feeling. Is very DENSE, and so malleable that it can be malleted with the greatest ease.

Highly recommended in Combination Fillings of Gold and Amalgam. When properly manipulated with PURE MERCURY it will retain its color under all circumstances.

PRICE, 1-4, 1-2 and 1 oz. packages, per oz., \$1.00. **PRICE**, 2 ounces, \$7.00.

CAULK'S DIAMOND POINT STOPPING.

This form of gutta-percha, having been in the market for several years, has stood the greatest test of all—that of time. It is regarded as the best preparation of its kind for filling teeth in the world.

The Stopping is put up in Sealed Envelopes, and the Pellets and Cylinders in Sealed Boxes, each bearing a fac-simile of our signature.

PRICE, in 1-8, 1-4, 1-2 and 1 ounce packages, per ounce, (reduced to) \$2.00.

CAULK'S HYDRAULIC PEBBLES.

Its HYDRAULIC qualities render it invaluable for setting pivot teeth. It is so pliable that it can be molded or shaped into various forms, and when crystalization is complete can be carved and polished, same as the sculptor does his marble.

PRICE, large package, \$2.00. **PRICE**, small package, \$1.00.

ALL OF CAULK'S FILLING MATERIALS are sold by TROY WEIGHT.

OVER FIFTEEN THOUSAND (15,000) Dentists are using these Materials throughout the civilized world. What better evidence do you wish of their Superiority and Excellence? If your dealer or agent does not have these materials, send your order to our address and it will receive prompt attention.

CAULK'S DENTAL ANNUAL FOR 1884-'85.

A Dental Hand-Book of Reference. Pamphlet of 100 octavo pages. Price, 25 cents.

L. D. CAULK, Manufacturer and Proprietor,
CAMDEN, DELAWARE.

[apl-85-1y.] Sold at all Dental Depots. For sale by Buffalo Dental Manufacturing Company.

• • • • • • •

Fletcher's • Asbestos • Fire

❁ FOR PRODUCING A PLEASANT RADIATED ❁
HEAT FOR WARMING APARTMENTS.

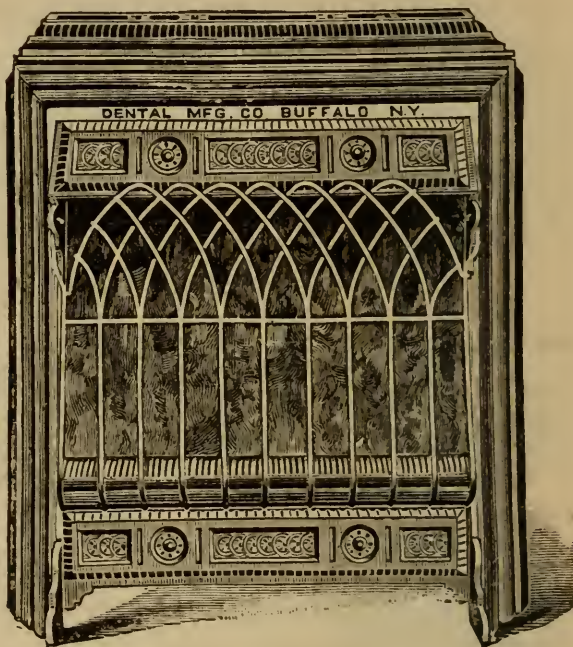
BEST IMITATION OF A COAL GRATE FIRE YET PRODUCED.
INVALUABLE FOR DENTISTS' OPERATING ROOMS.

A gas flame, from a special form of the Patent Radial Burner, streams up against a perpendicular fire surface of Asbestos fibre, which is almost instantaneously brought to an intense heat, giving a large percentage of the full effect due to the gas burnt.

The radiant heat evolved from the Fletcher Asbestos Fire renders it peculiarly applicable as a foot warmer, to place near the chair in dental operating rooms. Its use for this purpose has been very satisfactory, and is highly commended.

If used occasionally, and for a short time only, the products of combustion may be allowed to escape directly into the apartment; but for continuous use suitable flue connection should be made, as all gas heating apparatus, if used in small apartments without ventilation, will vitiate the air to a certain extent.

Gas consumption, about fifteen feet per hour.



Patented January 1, 1884.

Dr. G. C. DABOLL, **BUFFALO**, ARE USING THE ASBESTOS
Dr. W. C. BARRETT, **BUFFALO**, GAS FIRES IN THEIR OFFICES

PRICE: Fletcher's Asbestos Fire, \$10.00
With Front, Sides and Top Nickel Plated, 15.00

MANUFACTURED ONLY BY THE **BUFFALO DENTAL MANUFACTURING CO.**

JUST THE THING! NEW! NICE! PRACTICAL!

EVERYBODY IS USING THEM.

DENTAL CAPSICUM PLASTERS

Made of the same ingredients as the popular "pepper bag," and are more effectual; very cheap; nicely flavored; soft and flexible; with thick felt back; will stick to the gums; will not dissolve in the mouth or impregnate the saliva with pepper; smart only on the gums; gotten up in nice style, and pleases everybody.

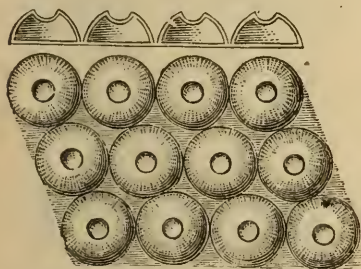
For securing resolution or suppuration in inflammatory conditions of the pericemental membrane, and for the relief of all pulp irritation, they have no equal.

Sent to any address, Six Dozen for \$1.00.

Prepared by FRANK B. DARBY, D. D. S.,

126 East Water Street, ELMIRA, N. Y.

[oct-85-1y.] FOR SALE BY BUFFALO DENTAL MANUFACTURING CO.



Surface Cohesion Forms for Artificial Dentures.

A system by which Artificial Dentures can be made much smaller, and hold firmly, as the cohesion extends over the whole surface of the plate, instead of only at one point as in the central air or suction chamber. By the use of the *Surface Cohesion Forms* the sense of taste is not impaired nor is there any irritation. The inner surface of the plate will be covered with semi-oval projections (as seen in cut enlarged four diameters) the whole length of the plate, which causes it to stick to the gums as if it were glued, and without causing any irritation of the membrane.

The *Surface Cohesion Forms* are cemented on the cast, with liquid rubber, the *Surface Form* being correspondingly cut; after the wax is boiled out, and flask packed, the flask is screwed together, and when vulcanized, the palatal surface of the plate will be covered with semi-oval projections its entire length, and with a beautiful clean finish. For gold, platinum or any metal, cement the "surface cohesion form" to plaster cast, mould in sand, make three zinc dies, and lead counter dies and swag up plate.

SURFACE COHESION FORMS, put up neatly in boxes of one dozen, with full directions, \$1.00

Liquid Rubber, per bottle, 35 cents; per dozen bottles, 4.00

For sale at all Dental Depots.

A method of preparing Rubber plates for the vulcanizer without waxing or flasking. Full instructions furnished for \$5.00 on application to

Dr. J. SPYER, 245 East 19th St., New York City.

PHILADELPHIA, July 13, 1885.—The undersigned have witnessed a satisfactory clinic given by Dr. Spyer of his new method of constructing vulcanite plates.

S. H. GUILFORD, D. D. S.	A. P. BEALE, D. D. S.
FRANK R. FABER, D. D. S.	H. M. SHEPPARD, D. D. S.
THEODORE F. CHUPEIN, D. D. S.	THOMAS W. BUCKINGHAM, D. D. S.
CHAS. F. BONSALE, D. D. S.	GEO. W. CUPITT, D. D. S.

[oct-85-1y]

SMITH'S FIFTEEN-MINUTE DENTAL RUBBER

Has become widely known and a necessity to many dentists. It makes a strong, durable plate, and is invaluable for repairing purposes.

PRICE, \$3.00 per lb., 20 cts. per sheet.

I have a large and well selected assortment of H. D. JUSTI'S and W. D. M. CO.'S ARTIFICIAL TEETH, also a full assortment of BONWILL CROWNS, GOLDS, AMALGAMS, RUBBERS, FORCEPS and miscellaneous DENTAL GOODS.

Orders filled with care and promptness.

Address,

FRED. W. SMITH,

Dental Depot, BINGHAMTON, N. Y.

P. O. BOX 262.
ja-85-1y


JOHN BIDDLE,


MANUFACTURER OF

DENTAL INSTRUMENTS

OF EVERY DESCRIPTION, WHOLESALE AND RETAIL,

207 Center Street, between Howard and Grand, NEW YORK.

 Orders filled for all kinds of Dental Goods.

 Instruments repaired in the best manner and at the shortest notice.

All Instruments manufactured by JOHN BIDDLE for sale by B. D. M. Co. [jy&oct.85.]

Low's Counter-Irritant Dental Plasters.

The application of counter-irritants to the gum, in the form of a plaster, has some advantages over the ginger or pepper bag, as the plaster can be made to adhere to the gum, and is less bulky. It will, therefore, easily retain its place, and the effect will be more prompt and certain, the action of the remedies not being interfered with by a constant wash of saliva.

It is questionable if one degree of stimulation should be expected to answer the purpose equally well for all stages of pericemental inflammation, and in order to meet the varying indications which are presented, three different plasters have been devised, as follows:

PLASTER NO. 1 is a very mild stimulant, suitable rather for warding off threatened inflammation, than for reducing it when present. It is recommended for use after filling pulpless teeth or setting artificial crowns.

PLASTER NO. 2 is a more rapid stimulant, composed of capsicum, and is applicable to all cases when it is desired to bring about resolution instead of hastening suppuration.

PLASTER NO. 3 is a Mustard Paste, and is by far the best application when suppuration is inevitable and the desire is to hasten the discharge and relieve the patient.

Each bunch of six plasters is wrapped in tin-foil to prevent deterioration by exposure to the air; making a convenient package for the patient.

They are put up in boxes containing nine dozen of either kind, or assorted. Price, \$1.00 per box.

Prepared by DR. F. W. LOW, Attica, N. Y.

BUFFALO DENTAL MFG. CO, General Wholesale Agents.

NITROUS THE LEWIS OXIDE

GASOMETER.

THE
Best and Most Convenient
FOR THE PRICE
YET PRODUCED.

Made of the Best Galvanized
Iron, highly and artistically
ornamented. All bright
parts nickel-plated.

IT IS FITTED FOR EITHER A 100
OR 500 GALLON CYLINDER.

Contains an effective Water Seal.

FOR SALE BY ALL DEALERS
IN DENTAL GOODS.

MANUFACTURED ONLY BY

BUFFALO DENTAL MFG. CO.,

Court St., corner of Pearl,

BUFFALO, N. Y.



THE • LEWIS • GASOMETER FOR NITROUS OXIDE.

In the administration of Nitrous Oxide for the production of anæsthesia, experience has shown that there are objections to the use of the gas bag which forms a part of the usual outfit for the purpose. A small gasometer holding enough gas for administration to one patient has been found preferable on many accounts.

THE BUFFALO DENTAL MANUFACTURING CO. have ready for the market a

NITROUS OXIDE GASOMETER,

the result of extensive experience in the administration of Nitrous Oxide, combining all necessary requirements, with a beauty of design which will render it an ornament to any operating room.

The body of the Gasometer is made of **GALVANIZED IRON**, and is placed upon an ornamental cast-iron stand, the whole being neatly japanned and ornamented. The stand is furnished with a support which will securely hold either a 100 or 500 gallon cylinder, enabling the operator to use either size, as may be desired.

The Gasometer is furnished with a water-seal, which may be adjusted to either wholly or partially sustain the weight of the bell, dispensing with balance weights, and preventing the escape of gas if the tap on the inhaling tube should accidentally be left open. This arrangement obviates the necessity of turning off the gas when the mouth-piece is withdrawn preparatory to operating; the flow being checked automatically by the water-seal, the dentist is enabled to give his whole attention to the patient and proceed at once. It is advisable, however, to close the inhaler valve, immediately after the operation, to prevent the tubing being filled with air; also to shut the stop-cock on the Gasometer to provide against any leakage in the tubing.

The economy of this apparatus is unquestioned, as gas left over after administration is saved, and in good condition for future use.

The fittings are all Nickel-plated. Capacity of Gasometer about seven gallons.

The No. 1 and No. 2 are identical in construction, the difference being in ornamentation.

No. 1 is double japanned, artistically ornamented and finished in gilt, as shown in the cut. No. 2 is neatly japanned and striped.

Orders filled in rotation as received.

PRICES.

No. 1 Lewis Gasometer,	\$30.00
No. 2 Lewis Gasometer,	25.00

The above prices are for Gasometer and Stand alone, boxing included.

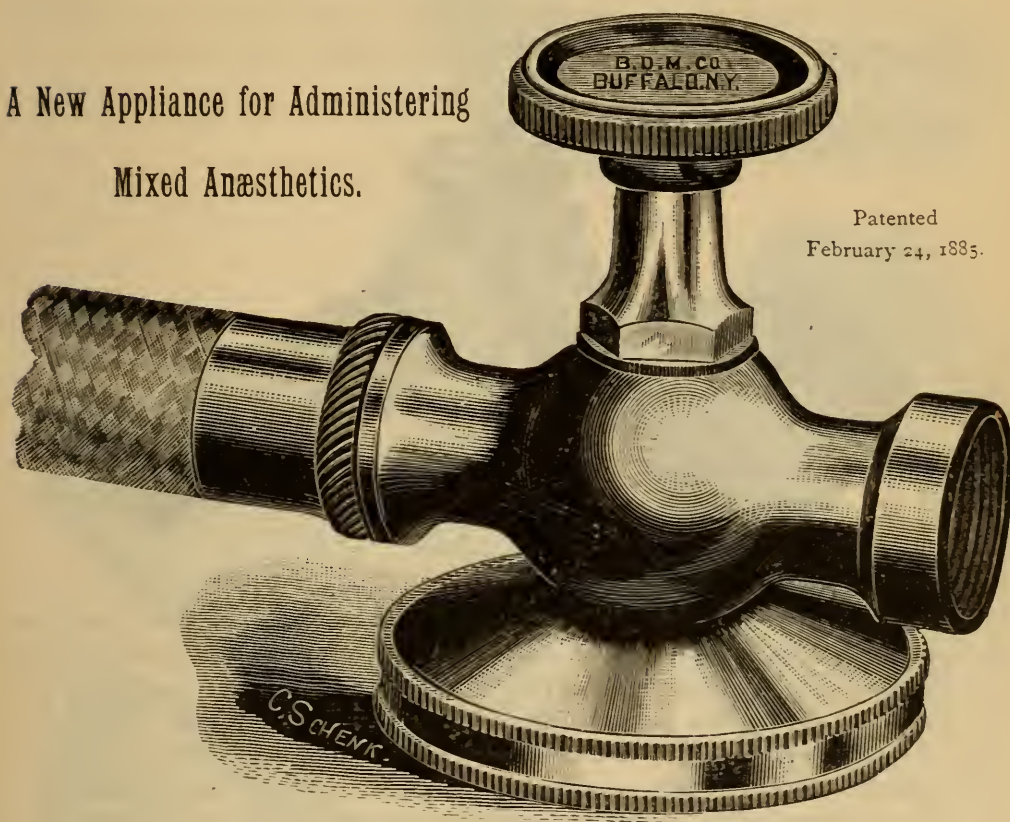
PARTS OF GAS OUTFIT.

Cylinder with 100 Gallons Gas	14.00
Cylinder with 500 Gallons Gas,	39.50
Refilling 100 Gallon Cylinders, @ 4c. per gallon,	4.00
Refilling 500 Gallon Cylinders, @ 3½c. per gallon,	17.50
Metallic Connection to connect Tubing with Gasometer, . . . . .	.25
Inhaler Tubing, Worsted Covered, per foot, . . . . .	.50
Wheel Key, for opening Valve to Cylinder, . . . . .	.25
Yoke, or connection between Cylinder and Rubber Tubing, Nickel-Plated,	1.50

CHLOROFORM MIXER

FOR ATTACHMENT TO LEWIS GASOMETER OR
OTHER NITROUS OXIDE APPARATUS.

A New Appliance for Administering
Mixed Anæsthetics.



The Buffalo Dental Manufacturing Co. offer to the Dental Profession, as an adjunct to the Lewis Gasometer, an apparatus which is believed to present some new and valuable features as compared to those heretofore used. The chloroform is confined in a receptacle below the gas passage, which is closed by a screw valve. A stem, covered by a fibrous sheath, extends downward from the valve into the chloroform. When the mixture is to be made, the valve is loosened by the wheel-handle, and drawn upwards, raising with it the covered stem, which brings with it a certain amount of chloroform into the gas passage, where it is exposed to the current of gas as it passes to the inhaler. A small piston closes the passage to the chloroform reservoir as the handle is raised, cutting off the escape of vapor. With this apparatus the mixture may be made or withheld, and more or less chloroform given, as the judgment of the operator may dictate. The Chloroform vapor does not pass into the gasometer, but directly to the patient, and by giving it when the patient is already partially under the influence of the gas, the effect of both is intensified, anæsthesia is prolonged, and a notable saving is made in the quantity of gas administered.

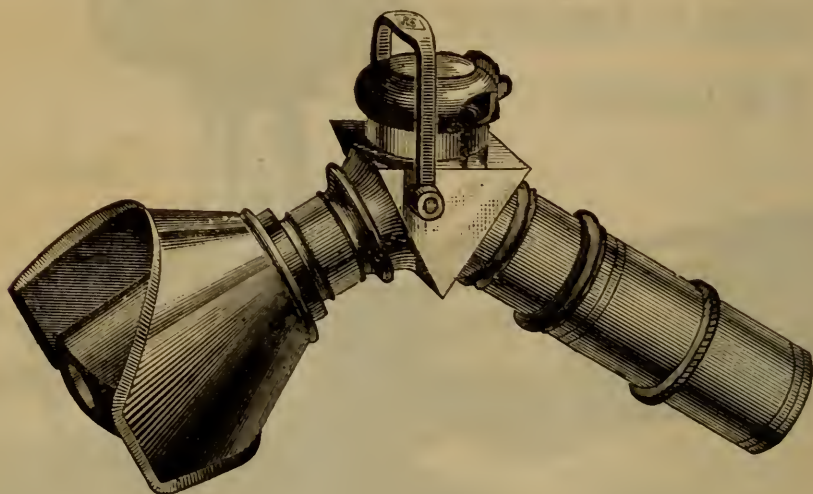
PRICE.

B. D. M. Co.'s Chloroform Mixer, for the Lewis Gasometer, \$6.00
Expense of adaptation to other styles of gas apparatus, \$1.00 to \$2.00 extra.

Inhalers for Nitrous Oxide Gas.

The S. S. White Dental Manufacturing Co.'s Inhaler No. 2.

This Inhaler is constructed entirely of metal, except the mouth-piece and two valves, which are of hard rubber, so it can be washed without injury to any of its parts.



The Inhaler is so constructed that there is a perfectly free passage of the air to and from the lungs, the exhaling valve being held open when the patient is not required to breathe gas. In place of the two-way stop-cock, the inventor has placed both valves in a prism-shaped casing. Through this casing a shaft passes, on which are two arms. This shaft is provided with a bow, shaped like a letter D, by means of which it is rotated by the thumb of the operator. When the bow is pressed in one direction, one of the arms attached to the shaft on the inside of the casing presses against and holds open the exhaling valve, allowing the air to pass freely to and from the lungs of the patient, and at the same time the other arm rests against the inhaling valve, closing the passage to the reservoir which holds the gas, making it impossible for any gas to escape. When the bow is pressed in the other direction as far as it will go, it is caught, and both valves are thrown into action and left subject to the slightest breath of the patient.

When the patient has had sufficient gas, the operator touches the D-shaped bow, and the supply of gas is automatically shut off, and all possibility of waste of gas is prevented. The angle in the Inhaler causes the covered tubing to fall parallel with the breast of the patient, out of the way of the operator.

The Inhaler is as simple in construction as the old style, and no more likely to get out of order.

PRICES OF THE S. S. WHITE DENTAL MFG. CO.'S INHALER NO. 2.

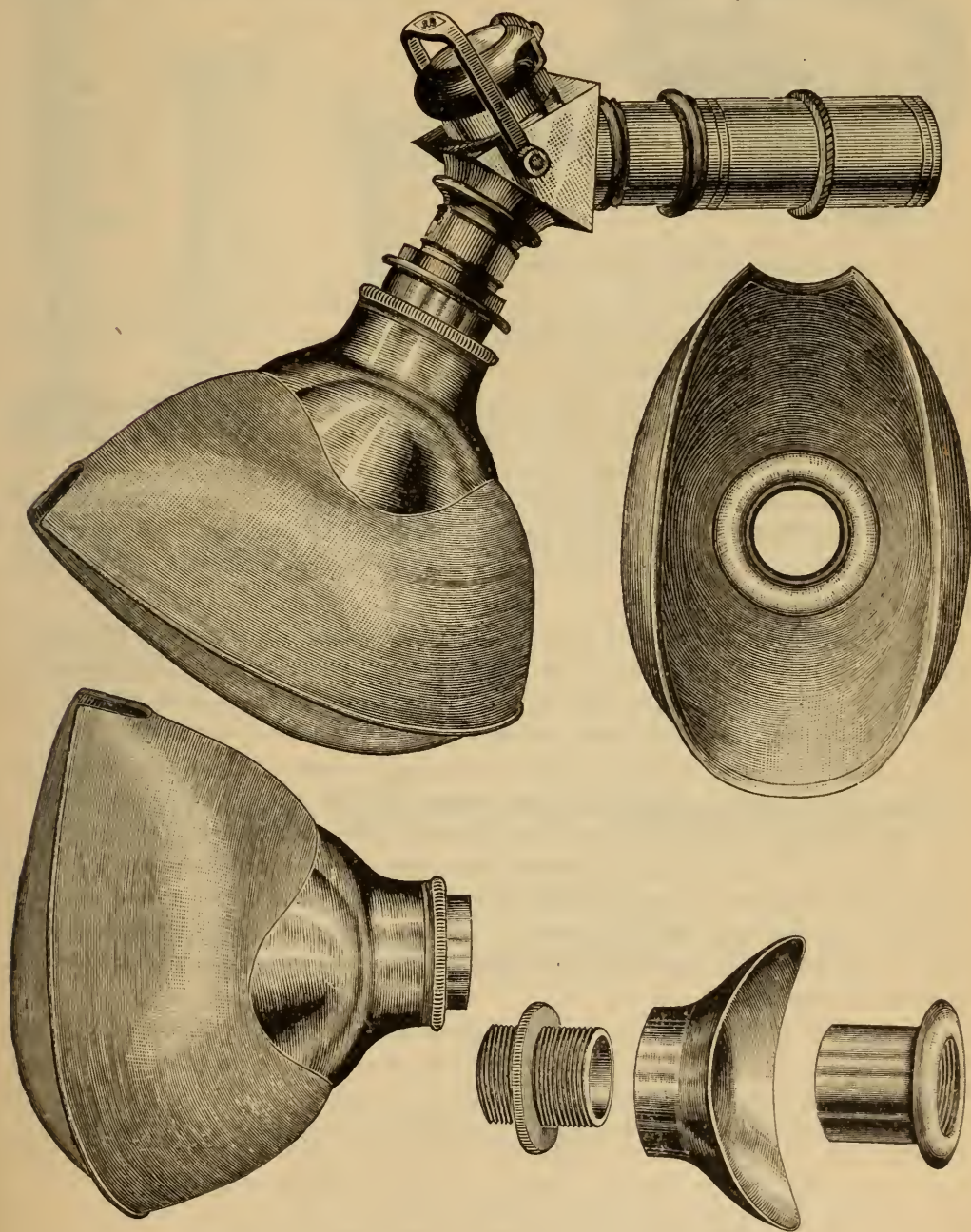
FITTED FOR CONNECTION WITH COVERED INHALER TUBING.

Inhaler with Metallic Shield and Hard Rubber Mouth Piece, as shown	
in cut,	\$8.00
Inhaler with Codman & Shurtleff Rubber and Metallic Hood,	11.00

FLEXIBLE * FACE-PIECE

FOR THE

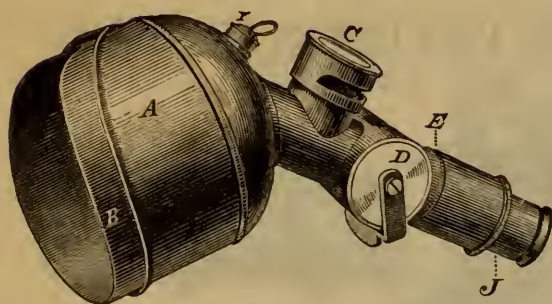
S. S. White Dental Mfg. Co.'s Inhalers Nos. 1 & 2.



This form of Face-piece is claimed by the manufacturers to be superior in many respects to any heretofore offered. The oval shape is maintained by the peculiar metal fittings, as shown in detail. In ordering, state whether it is for the No. 1 or No. 2 S. S. White Dental Manufacturing Co.'s Inhaler.

Price of Face-piece and Fittings, less Inhaler,	\$3.00
“ “ “ Inhaler, complete,	10.00

The Codman & Shurtleff Inhaler No. 105.



A, Metallic Hood, containing *B*, the Flexible Rubber Hood, covering both nose and mouth. *C*, Exhaling Valve. *D*, Two-way Stop Cock. *I*, Packing, through which a silk cord passes, to which a mouth prop or hard rubber gag can be attached. *E*, Sliding Joint, where *J* is detached, contains the Inhaling Valve.

The manufacturers of this Inhaler claim :

1st. Durability. Being made of metal they are not liable to be easily broken, as so frequently happens to the hard rubber Inhalers ; and, as they are nickel-plated, they retain their brilliant polish without change.

2d. Convenience both to the patient and operator. With one hand the dentist can conveniently apply the inhaler and open or close the two-way stop cock, having the other hand at liberty to control the patient or for such exigencies as may occur.

As the Elastic Hood covers both nose and mouth, the patient is saved the necessity of having the nostrils closed by either clamps or the fingers of the dentist, a part of the operation always very disagreeable, and, to very sensitive patients, positively frightful, as it produces a feeling of suffocation.

3d. Cleanliness. The Rubber Hood, which alone comes in contact with the face, is easily removed and replaced, and as all other parts are either metal or hard rubber, the whole instrument can be kept perfectly pure by washing, which is a point of great importance to the comfort of the patient as well as to the reputation of the dentist.

4th. Durability and accurate working of the valve. Upon this, perhaps, more than anything else, depends the successful administration of anæsthetics.

If the exhaling valve does not quickly and perfectly close while the gas is being inhaled, air is taken with it, and the gas is so much diluted that it very much delays or wholly prevents the desired effect. If, on the other hand, the inhaling valve does not work properly, the patient breathes back into the reservoir a mixture of nitrous oxide and carbonic acid, which, however rapidly it may produce insensibility, is dangerous to the health, and to be specially guarded against.

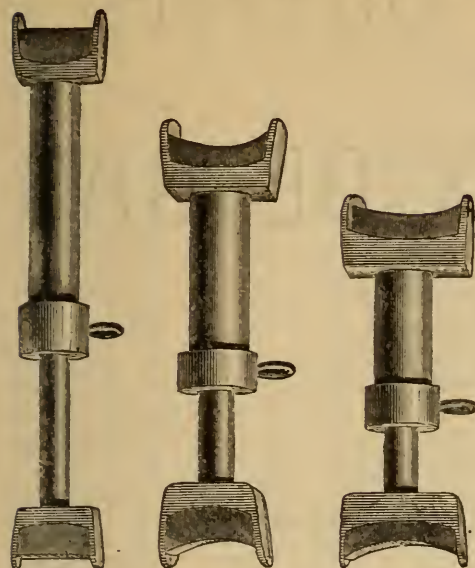
The LEWIS GASOMETER can be furnished with a CODMAN & SHURTLEFF INHALER, or with the S. S. WHITE DENTAL MANUFACTURING CO.'s INHALER. Both styles with or without metallic and flexible rubber hoods.

PRICES OF THE CODMAN & SHURTLEFF INHALER.

FITTED FOR CONNECTION WITH COVERED INHALER TUBING.

Inhaler, without Shield or Hood, having only Hard Rubber Mouth-piece attached,	\$6.50
Same with Mouth Hood or Shield,	8.00
Inhaler, with Metallic and Rubber Hood, as shown in cut,	10.00
Hard Rubber Gag, . . . . .	.50
Rubber and Metallic Hood only, to attach to other inhalers,	4.50

BICKFORD'S · DENTAL · MOUTH · PROPS.



This new device is intended to take the place of the Wooden Peg, or Cork, to keep the mouth of a patient open while administering Gas, for the Extraction of Teeth, or any operation that requires the teeth kept apart.

It consists of a prop made in the form of a telescope slide, pin and tube, with an enclosed spiral spring, and after being put into the patient's mouth, is held firmly in position against the teeth by the action of the spiral spring, and readily adapts itself to the opening and closing of the jaw. The prop is thus prevented from dropping out, and the mouth is kept open wide enough for any operation.

The outer ends of tube and pin are provided with socket pieces, in which are fitted blocks of rubber, to act as cushions to protect the teeth. They are made of metal, heavily nickel-plated, so that while they possess greater strength than the wooden peg, they are much smaller, and consequently take up less room. Further, they

can be kept clean and bright, and patients do not object to them. The cuts show the three regular sizes, Nos. 1, 2 and 3. No. 1, the longest, for FRONT teeth; No. 2, for BICUSPIDS; and No 3, for MOLARS, or any portion of the mouth that requires a short prop. The props are very easily taken apart and new springs put in when old ones get weak or worn out.

PRICES.

Each,	\$1.00
Per set of three,	2.50
Springs, each, . . . . .	.10
New Rubbers, per set of three pair, . . . . .	.10

A Reliable Work on Anaesthetics,

ESPECIALLY IN REGARD TO

NITROUS OXIDE GAS.

THE

ADVANTAGES AND ACCIDENTS OF ARTIFICIAL ANÆSTHESIA:

A MANUAL OF ANÆSTHETIC AGENTS, AND THEIR
EMPLOYMENT IN THE TREATMENT
OF DISEASE.

BY LAURENCE TURNBULL, M. D., PH. G.

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❖ ————— PRICES FOR ————— ❖

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FOR THE ADMINISTRATION OF

NITROUS OXIDE GAS.

OUTFIT No. 1.

No. 1 Lewis Gasometer,	\$30.00
4 feet of Covered Inhaler Tubing,	2.00
White-metal Connection, . . . . .	.25
Yoke,	1.50
Wheel Key, . . . . .	.25
100-gallon Cylinder, filled,	14.00
Codman & Shurtleff Inhaler, with Shield and Hard Rubber Mouth-piece,	8.00
	<hr/>
	\$56.00

The Shield and Hard Rubber Mouth-piece are shown in the illustration of the S. S. White Dental Manufacturing Co.'s Inhaler No. 2.

OUTFIT No. 2.

Same as Outfit No. 1, excepting that the Inhaler has the Elastic and Metallic Hoods
A. B. (see illustration of Codman & Shurtleff Inhaler No. 105), \$58.00

OUTFIT No. 3.

Same as Outfit No. 1, excepting that the S. S. White Dental Manufacturing Co.'s
Inhaler No. 2 is substituted for the Codman & Shurtleff Inhaler, \$56.00

OUTFIT No. 4.

Has the Codman & Shurtleff Rubber and Metallic Hood attached to the S. S. White
Dental Manufacturing Co.'s Inhaler No. 2, \$59.00

OUTFIT No. 5.

Same as Outfit No. 1, with the substitution of the No. 2 for the No. 1 Lewis
Gasometer, \$51.00

OUTFIT No. 6.

Same as Outfit No. 2, with the substitution of the No. 2 Gasometer, \$53.00

OUTFIT No. 7.

Same as Outfit No. 3, with the substitution of the No. 2 Gasometer, \$51.00

OUTFIT No. 8.

Same as Outfit No. 4, with the substitution of the No. 2 Gasometer, \$54.00

These prices include boxing and portorage.

For additional Inhaler tubing, if it is needed, add 50 cents per foot to the above prices.

Other patterns of inhalers can be supplied as desired, and at list prices.

In ordering *complete outfits*, specify the outfit wanted by the number.

If dentists already have a gas cylinder, deduct its price from above prices.

If a 500-gallon cylinder is wanted, add about \$25.00 to the above prices. The price will depend upon the quantity of gas in the cylinder, which varies with different cylinders.

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THE METALS USED IN FLETCHER'S AMALGAMS ARE REDUCED DIRECT FROM THEIR SALTS, AND ARE CHEMICALLY PURE. "COMMERCIALLY PURE" METALS ARE NEVER USED. THEY ARE THE ONLY ALLOYS WHICH ARE AND HAVE BEEN, FROM THE FIRST, TESTED IN GOT BY INGOT FOR ALL NECESSARY PROPERTIES, AND THEIR UNIFORMITY ABSOLUTELY GUARANTEED. UNTIL THE INTRODUCTION OF THESE ALLOYS, AMALGAMS NEVER WERE TESTED FOR ANY PROPERTIES. THESE AMALGAMS ARE STRICTLY FIRST-CLASS, AND GUARANTEED AS REPRESENTED IN EVERY PARTICULAR.

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AN ADHESIVE VARIETY OF THE PLATINUM AMALGAM,
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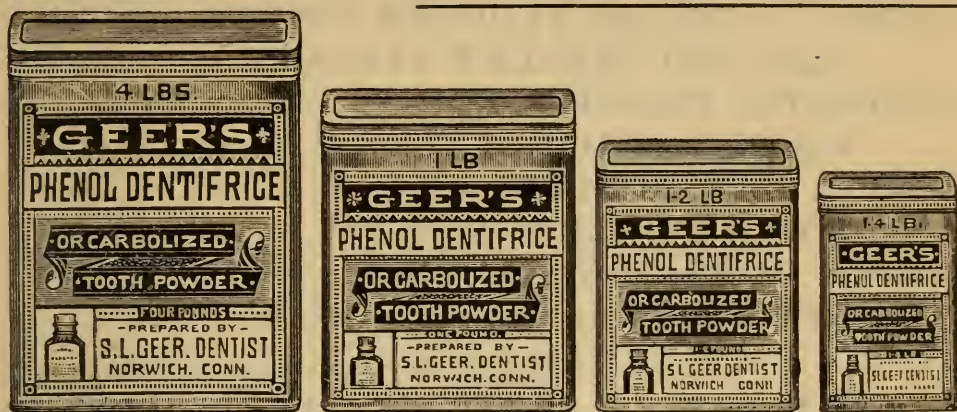
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10-lb.90 "
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EXTRA PLASTIC AMALGAM,	5.00
	Per pkt.
WHITE ENAMEL, Oxychloride of Zinc,	\$1.50
ARTIFICIAL DENTINE, Oxysulphate of Zinc,	1.00
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HYDRAULIC GUTTA PERCHA,	1.00
	Per bottle.
Color for White Fillings—Pink, Brown or Blue,	\$0.12
COPAL ETHER VARNISH, . . . . .	.25
CARBOLISED RESIN FOR TREATMENT, . . . . .	.25
	Each.
Glass Pestles and Mortars, ground inside, with long Pestles for firm holding,	\$0.50
Mixing Tube for Amalgam,15
Cylinder Mould for Amalgam,30
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STRENGTH, NATURAL SHAPES, TEXTURE, COLORS, LARGE DOUBLE-HEADED
PINS, &c., COMBINED WITH OUR VERY LARGE ASSORTMENT
OF MOULDS AND VARIETY OF SHADES.

ASK YOUR DEALER FOR THEM, OR SEND ONE DOLLAR FOR A SAMPLE SET.

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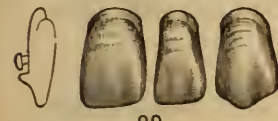
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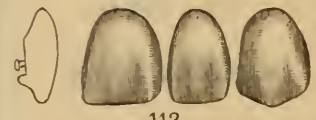
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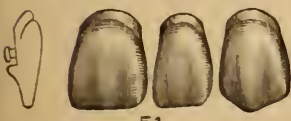
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Dr. VON BONHORST'S
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from the time it was first obtainable to the present, I take pleasure in saying I consider it of great utility,

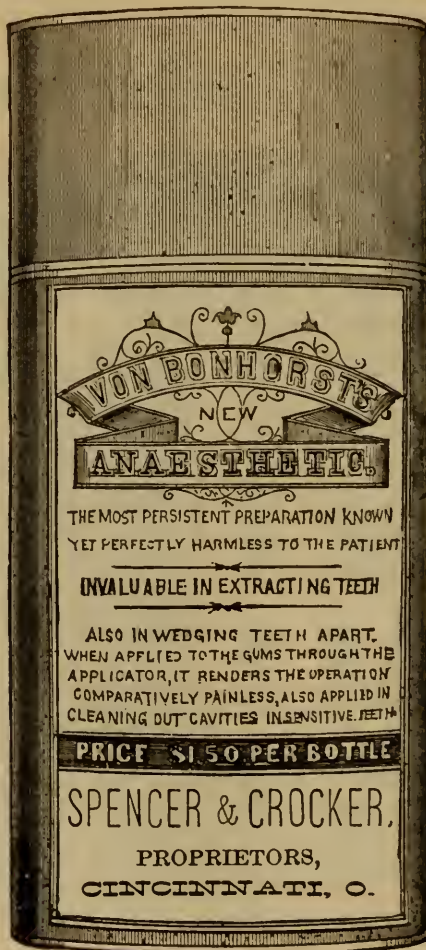
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have treated a score of
Exposed Nerves

both those that follow excavating, as well as those exposed from decay, and

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